CHILDBIRTH

IN

NEW SOUTH WALES:

A STUDY IN STATISTICS.

ILLUSTRATED BY EIGHT DIAGRAMS.

BY

T. A. COGHLAN,

Statistician of New South Wales: Honorary Fellow of the Royal Statistical Society.

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INTRODUCTION.

THE investigations, the results of which appear in the following pages, represent the experience derived from the various colonies of Australia, but chiefly from New South Wales. As, however, there is nothing in regard to the phenomena of childbirth in which Australia can be said to differ in any material way from other civilised countries, the results can be considered, if not of universal application, as applicable to communities under conditions similar to those prevailing in Australia.

The particular branch of social statistics dealt with has been greatly neglected, and much of what is here presented will be welcomed by all interested in such matters, as no similar information has hitherto been published.

The influence of the married state as a help to a longer life is incidentally investigated, and the statistics confirm the popular notion that the married, as a rule, live longer than the single, even when all are excluded from the comparison whom natural or acquired disabilities force to remain unmarried.

The period of fertility amongst women is shown to extend from the twelfth to the fifty-eighth year, as at each of these ages there have been confinements in New South Wales during the past six years. Notwithstanding that the years of possible fertility cover so long a period, not ten out of a hundred births occur to mothers under 21 years of age, nor does more than the same proportion occur to mothers over 38 years. During the eighteen years of the mother's life from 21 to 38,

three of every four of her children are born; while not three in two hundred children have mothers whose ages are below 18 or more than 45. These ages last mentioned may be taken as marking the limits of the child-bearing period properly so-called.

The proportion of fertile marriages is probably becoming smaller in most civilised countries. So far as Australia is concerned the decline can be stated with exactness; for whereas there were nine fertile marriages in every ten contracted a generation ago, there are but eight at the present time. The decline is common to all but the youngest ages, and is more marked as the age at marriage increases. How far this condition is due to prevention, and how far to natural sterility, is a problem which the statistics do not solve. Three sets of facts are available: the first shows that for all women the proportion of fertile marriages is declining; the second, that amongst fertile women the birth-rate is much reduced as compared with what it was twenty years ago; and the third, that Australian women are less fertile than the European women who have emigrated to these shores. As regards the general question of the decline in fertility there are many points of illustration. The average birth-rate throughout Australia is now not more than 20 for every hundred women between the ages of 18 and 50 years, while as recently as 1884 the number was 30; so that the decline is equal to one-third. A striking instance of this comes from New South Wales. In 1885 there were 112,546 women of the ages stated; in 1898 there were 165,767; yet the same number of children were born in each year. Looking more closely into the matter, it is found that the birth-rate amongst married women who have not had previous issue has fallen from 33·7 per hundred to only 26·5; whilst for women with previous issue, the rate, which was 27·8 in 1887, is now not more than 19. At every stage of child-bearing the reduction

in the birth-rate is visible. Taking Australia as a whole, and including New Zealand, the fall in the birth-rate is such that there are 47,000 births less than would have occurred under the rates prevailing as late as ten years ago. So important a development of social life must have far-reaching consequences, although its economic effects are only beginning to be visible. From New Zealand comes the cry that the children are not sufficiently numerous to fill the schools; while in Victoria there must be a like state of affairs, seeing that there are now a less number of children under ten years of age than in 1891.

The couples without children are, in proportion, twice as numerous as they were in the last generation, and the number to a couple has on an average fallen from 5·31 to 4·04—that is, by 127 children to a hundred families. There has been a slight tendency to postpone marriages, the age both of grooms and brides being now somewhat higher than formerly. This, however, does not account for the reduction in the size of families, seeing that the decline is found at every age of marriage. Where the bride's age is 20 the average number of her children was formerly 6·2, now it is 5·3; at age 30 the reduction is from 3·4 to 2·2; at age 39, from 1·1 to 0·5; and so at every age. It must not be supposed, however, that there are no longer any large families; on the contrary, as many as 29 children have been born to the same father, and 21 to the same mother; but these large families are very much less frequent than was once the case.

The marriages of a generation ago produced an average of 5·31 children. To women of British or Irish birth the number of children to a family was 5·6; to Australian women the average was only 4·7. The number for all classes has now fallen to 4 children per marriage, the reduction affecting both the native-born and women of British birth—but more largely

the former; and although the facts are not absolutely conclusive, it would appear that the families of women of Australian birth do not now on an average exceed 3·5. In connection with this extremely important matter there is much room for further investigation. It will probably be found that the women who bear large families can be assigned to one or other of certain distinct classes: those who look upon child-bearing as a condition of the married state to be accepted—cheerfully or not, as the case may be—as amongst the things that are inevitable; those who are influenced in their conduct by considerations of religion; and those who, uninfluenced by motives of prudence or religion, are careless as to the number and fate of their offspring, being ready at any moment to transfer the obligation of their support to the community at large.

The prevalence of births of ante-nuptial conception—a matter hitherto little understood—has now been completely investigated. The number of these births varies with the conditions of every country. In New South Wales, during the past six years, there were 13,366 marriages in respect of which there was ante-nuptial conception, and as the total number of marriages was 49,641, at least 27 marriages in a hundred followed conception. During the same period the illegitimate births numbered 14,779—there were therefore 28,145 cases of conception amongst unmarried women; in 13,366 instances marriage preceded the birth of the child, so that the children were legitimatised in rather more than 47 cases out of 100. A study of the figures of births of ante-nuptial conception makes it obvious that in a very large number of instances premarital intercourse is not an anticipation of marriage already arranged, but that the marriages are forced upon the parties, and would not be entered into were it not for the condition of the woman.

The marriage rates throughout Australia are by no means high, and would be much lower if it were not for the mischances of ante-nuptial intercourse. As one-third of all first births are due to ante-nuptial conception, the discussion of the phenomena attending such births is a good deal affected by that circumstance. Setting aside births of ante-nuptial conception, the time elapsing from marriage to the birth of a child averages about nineteen months, but with individuals the times vary from nine months to 22 years. The fertility of a marriage will be proved in 33 cases out of a hundred within twelve months of its being contracted, in 64 cases within two years, and in 71 cases in three years, after which time only six more marriages will prove fertile. Of every hundred unions, therefore, there will be about 77 to which children will be born; some of the remaining 23 will be cut short by death before being fully tested as regards fertility, but the most of them will be barren under any circumstances.

Postponement of marriage on the part of a woman conduces to infertility, as the reproductive system if unused becomes inoperative. This will be readily seen from the illustrations given in the text. Excluding marriages where ante-nuptial conception has taken place, it is found that when a woman is 31 years of age and just married, her chances of having a child within twelve months are not greater than those of a woman of the same age who has already had children; at age 38 the probabilities are two to one in favour of the woman with previous issue, and at age 42 three to one.

Some few years ago Körösi, the distinguished Hungarian statistician, made an elaborate investigation of the legitimate birth-rates to men and women of various ages, and from the results brought out by him, Mr. Francis Galton deduced a law, viz., that there is a constant number from which, if the

united ages of parents be subtracted, the difference approximates to the number per cent. of parents to whom children will be born during a year. The investigation of the New South Wales statistics, covering far more extensive data than obtainable in Budapest, discloses no such law, nor anything analogous to it. The general law governing natality in Australia is one which is probably of universal application; it is that, with one exception, the younger the parents the greater probability of a birth. The exception is with wives verging on the limit of the child-bearing period. A woman, as she approaches that limit, possesses the greatest chance of becoming a mother with a husband of or about her own age. The question is one of great interest, and has hitherto not received the attention its importance warrants. The summit of natality for a man is at the youngest age of manhood, or rather at age 21, which is the lowest investigated; women, on the other hand, attain the summit of natality with their 23rd year, the birth-rate for women aged 18 averaging only 24 per cent., compared with 30·1 at age 23. Taking husbands and wives together, the highest (bigenous) natality is with fathers of 22 years and mothers of 24 years, at which ages the proportion of births was 32·1 per cent.

It is a somewhat general belief that the ages of the parents affect the sex of their offspring; this is true, but only in a limited degree. The total male births always exceed the female births; this excess is found at almost all ages of parents, and the exceptions to the rule do not cover very many cases. Where the father is ten years younger than the mother, there will be more female births than male; also where the father is 20 years or more older than the mother, provided the latter is herself not under 22 years nor over 33 years of age. The female births exceed the male as the mother approaches the limits of child-bearing, no matter what the father's age may

be. The youngest children in families where the mother continues to be fruitful up to about age 45, are more often girls than boys.

In one important respect the age of the parents is very material; both twins and triplets are more often born to mothers over 30 than at ages below that year, and this in spite of the fact that far more than half the births occur before mothers attain that age. It is well established that whatever may be due to heredity in regard to plural births, the age of the parents is the chief factor in determining their occurrence. There were 2,210 cases of plural birth in New South Wales during the past six years, and of these 1,342 happened to mothers of 30 years and upwards; while the number to be expected from the ordinary births at these ages would be 1,049. Of 19 triplet births, 14 occurred to women over 30 years, and also two of the three quadruplet births. The preponderance of plural births at the later ages is even more strongly marked amongst unmarried mothers.

There is a singular dearth of information in regard to deaths in childbirth; the actual number of such deaths are of course known wherever vital statistics are collected, but the more important details are singularly wanting. The statistics of New South Wales are now, in all important respects, the most complete yet published. For all ages, the risk in childbirth is 1 death to 142 confinements. The first confinement is more dangerous than any subsequent one up to the ninth; the minimum risk is at the second confinement, although the risk at the third is not much greater. After the third confinement the risk increases rapidly, but the question is not sufficiently investigated to enable it to be decided how much of the increased risk is due to loss of vitality or other conditions arising out of previous confinements and how much to the increased age of the mother. Distinguishing confinements

into those of primiparæ and multiparæ, it is found that the age of least risk is in both cases 21 years. For first confinements (primiparæ) the risk at age 17 is 1 death in 100 confinements; at age 21 it is 1 in 150; at age 25, 1 in 109; at age 30, 1 in 82; and at age 40, 1 in 50. For multiparæ the risk is very much less at all ages. At age 18 there is 1 death in 264 confinements; at age 21, 1 in 350; at age 30, 1 in 173; at age 40, 1 in 101. The risks indicated are apparently very high, but not so high as those established by Dr. Matthews Duncan, of Glasgow, other than whose statistics there are none existing with which they can be compared.

Other phases of the phenomena of childbirth than those outlined above are touched upon in the following pages, and the various diagrams with which they are illustrated will help to make the text and tables more easily understood.

STATISTICS RELATING TO CHILD-BIRTH.

Expectation of Married Life.

THE duration of a marriage depends upon the ages of the parties contracting that marriage. In New South Wales it has been ascertained that the average age of husbands is about four and a half years higher than that of their wives, and the following life table has been calculated on the assumption that this average holds good for each age, as well as for all ages taken together. To the duration of the joint lives—that is to say, of their marriage—has been added the term which the survivor may be expected to live after the death of his or her partner :—

Table I.—Expectation of Married Life.

Age of Husband.	Mean duration of Marriage.	Mean duration of period lived by Wife after death of Husband.	Mean duration of period lived by Husband after death of Wife.
years.	years.	years.	years
20	35·1	13·3	7·0
25	31·5	12·6	6·7
30	28·1	11·8	6·2
35	24·8	11·2	5·7
40	21·7	10·5	5·1
45	18·8	9·8	4·5
50	15·9	9·0	3·9
55	13·1	8·1	3·5
60	10·4	7·1	3·2
65	8·2	6·0	2·8

There are special statistics which enable a comparison in regard to longevity to be made between the married and the unmarried. These bear out the widely-accepted idea that the length of lifetime of married persons exceeds that of the unmarried. This excess is a little short of five and a half years for females up to about age 40, and about the same for males to age 45 ; after the years named the difference lessens, and almost disappears at the extreme ages. No conclusions of any practical utility can, however, be made from these or other available data as to the extent to which the married state is superior to the unmarried as a help to a long life. Only a part of the unmarried are of the same class as that from which the married are drawn, the

remainder largely comprising persons whose lives are impaired from the beginning, and who ought, if possible, to be excluded from the comparison.

Amongst the unmarried are the great majority of the insane—75 per cent. of the male and 46 per cent. of the female insane being unmarried; whereas amongst the general population over 20 years of age, only 44 per cent. of the males are unmarried, and 22 per cent. of the females. There are also many persons maimed, blind, bedridden, and otherwise afflicted to whom marriage is an impossibility, and whose lower expectation of life affects the average of the general population as compared with that of the married. And in regard to females marrying late in life, their expectation may be presumed to be large, for they are in a sense selected lives, otherwise they would not be asked in marriage in preference to younger women. It will be found, however, that when ample allowance has been made on the score of such persons, the expectation of life of the married is considerably higher than that of the unmarried, even if all the persons morally or physically unfit for marriage be left out of the comparison.

Period and Duration of Fertility.

During the six years (1893–98) the number of legitimate births was 210,935, and of illegitimate births, 14,779. The ages of the fathers varied between 17 and 85 years; but, as will be seen when the effect of age on child-bearing is dealt with, the number of offspring to a marriage depends almost wholly on the age of the female, and nothing determinative can be arrived at from the statistics as to the duration of fertility as regards the male. It is, therefore, only necessary to consider the question of fertility in regard to women. The youngest mother was 12 years old; but in the course of the six years there was happily only one such mother, and she was unmarried. At age 13 there were five mothers, and at age 14, forty-five. Not more than 62 births in 10,000 occur after age 45 is reached, and not 1 in 10,000 at ages from 50 onwards; but a birth has occurred within the period mentioned at as late an age as 58, the records showing three mothers aged 52, one aged 53, two aged 55, one aged 56, and one aged 58. There was also a child born to an unmarried woman aged 55. As, however, 9,938 out of every 10,000 children are born to mothers below 45 years of age, the limit of child-bearing may be placed for all ordinary cases at that year, although, in some of the tables given hereafter, the limit of child-bearing has been taken as 50 years.

The age distribution of mothers is as set out in the following table. The proportion of legitimate births increases with each year of the mother's age up to 26 years, at which age most children are born. This is not, however, the age of greatest fertility, for, as will be shown later on, a woman reaches the summit of her fertility three years previously. Amongst unmarried mothers the greatest proportion of births is at age 20.

Table II.—Proportion of Mothers of each age.

Age of Mother.	Per 10,000 Births.			Age of Mother.	Per 10,000 Births.		
	Legitimate.	Illegitimate.	All Births.		Legitimate.	Illegitimate.	All Births.
12	.....	0·7	0·0	26	590·3	397·9	577·7
13	.....	4·7	0·3	27	572·7	332·9	557·0
14	0·3	37·2	2·7	28	587·1	309·9	569·0
15	2·2	104·9	8·9	29	535·4	242·2	516·2
16	11·7	284·9	29·6	30 & under 35	2,348·9	870·2	2,252·1
17	46·1	572·4	80·6	35 ,, 40	1,629·9	544·0	1,558·8
18	106·0	816·0	152·4	40 ,, 45	606·3	163·7	577·4
19	188·4	952·0	238·4	45	32·1	9·5	30·7
20	254·2	954·1	300·0	46	16·9	6·8	16·2
21	366·1	908·0	401·6	47	9·4	1·3	8·9
22	452·8	809·3	476·2	48	3·9	1·3	3·8
23	523·3	684·1	533·8	49	1·5	0·7	1·4
24	550·3	539·3	549·6	50	0·4	2·7	0·5
25	563·4	448·6	555·8	Over 50	0·4	0·7	0·4

The age of the mothers of one-fourth of the children born does not exceed 24 years, and before women pass their 28th year they give birth to one half their offspring. Only 10 per cent. of the births occur after age 38, and less than 7 per cent. after age 40 has been attained. The following statement shows the ages nearest to which the indicated proportion of births occur.

Percentage of births.	Age before which percentage occurs.
10	21 years.
20	23 ,,
30	25 ,,
40	27 ,,
50	28 ,,
60	30 ,,
70	32 ,,
80	35 ,,
90	38 ,,

Proportion of Fertile Marriages.

The experience from which the probable fertility of women is deduced is the number of first births occurring during the three years 1896–98 compared with the number of women of child-bearing ages who were married in those years. It is true that the births were not in all cases the fruit of these marriages, and that a number of marriages, especially those entered on during the last year of the

period, had not been contracted sufficiently long to be fruitful; but the one element of error may be said to eliminate the other, as the marriages unproved as regards fertility at the end of the period may be taken as fairly balanced by the marriages contracted prior to 1896 and remaining unproved at the beginning of that year. On the basis just mentioned, the distribution of marriages and births into age groups for the three years would be as follows :—

Table III.—Fertility of Recent Marriages.

Age of Women at Marriage.	Number of Marriages.	Number of First Births.	Percentage of Marriages proving fertile.
16 and under 21	6,246	5,975	95·66
21 ,, 25	10,109	8,059	79·72
25 ,, 30	5,943	4,630	77·91
30 ,, 35	1,938	1,285	66·31
35 ,, 40	992	463	46·67
40 ,, 45	419	73	17·42
Average for ages, 16 to 45 years			79·87

The death registers record the number of children borne by each woman who dies, while the birth registers record the occurrence of the births of these children. Owing to the long period that usually elapses between marriage and death, the two sets of registrations in any particular year refer to two different sets of women, and there are therefore two distinct sources from which the number of fertile women may be deduced. The proportions of fertile marriages, as ascertained from the death registers of 1893–98, are as follow :—

Table IV.—Fertility of Earlier Marriages.

Age of Women at Marriage.	Number of Deaths of Married Women.	Number of Women who bore children.	Percentage of Marriages fertile.
16 and under 21	5,811	5,463	94·01
21 ,, 25	4,809	4,399	91·47
25 ,, 30	3,068	2,706	88·20
30 ,, 35	1,140	908	79·65
35 ,, 40	421	253	60·10
40 ,, 45	180	63	35·00
Average for ages 16 to 45 years			89·39

Speaking generally, the figures given in Table IV refer to women who were married a generation ago, the average duration of the

marriages of the persons enumerated being 31·4 years, while those in the preceding table refer to quite recent marriages. The proportion of fruitful unions is 89·39 per cent. in the case of the earlier marriages, and 79·87 per cent. of those of the present day, the decline being common to all age groups except the first (16 and under 21 years). The difference between the rates, great as it is, does not indicate the falling off in the proportion of children born; for, as subsequent tables show, the birth-rate amongst married women of child-bearing ages has fallen, even in the last fifteen years, from 30 to 20 per cent., and the number of children to a family from 5·31 to 4·04. Not only has the number of women who bear children declined, but fewer children are born to those who are fruitful.

The average number of births per hundred married women of child-bearing ages is shown in the following statement :—

Table V.—Showing decline in Birth-rate 1881–1898.

Year.	Estimated number of married women under 50 years of age (mean of year).	Legitimate Births.	Birth-rate per cent.	Year.	Estimated number of married women under 50 years of age (mean of year).	Legitimate Births.	Birth-rate per cent.
1881	92,513	27,510	29·74	1890	134,767	36,530	27·11
1882	96,715	28,238	29·20	1891	140,106	36,972	26·39
1883	101,695	29,684	29·19	1892	145,210	37,432	25·78
1884	107,194	32,172	30·01	1893	149,061	37,437	25·12
1885	112,546	33,135	29·44	1894	152,412	36,158	23·72
1886	117,849	34,283	29·09	1895	155,849	35,857	23·01
1887	122,466	35,228	28·77	1896	159,142	33,736	21·20
1888	126,478	36,218	28·64	1897	162,385	34,394	21·18
1889	130,433	34,997	26·83	1898	165,767	33,353	20·12

During the eighteen years covered by the table a very remarkable change took place in the proportion of women who bore children. Up to 1888, and including that year, there was no great decline in the proportion of births, the percentages slightly rising above or falling below an average of 29·3, the variation being due in a large measure to a like variation in the number of marriages contracted; but after 1888 the percentage of births showed regular and substantial decline, until in 1898 it reached the very low figure of 20·12. The decline is found amongst women of all ages, those recently married equally with those who have borne several children. The following statement makes plain the change which has taken place. For first births the percentage is shown both including and excluding births of antenuptial conception; the number of these latter, however, is only known since 1892. For that and previous years an allowance has been made on the basis of the rates ascertained for 1893. The table gives the number of births occurring

during a year to every 100 married women under 50 years, distinguishing those who had not already been mothers, those who had had one child, two children, etc., the last group comprising those who had already had seven or more children :—

Table VI.—Showing Birth-rate amongst women, according to previous issue.

Year.	No previous issue.		With 1 child.	With 2 children.	With 3 children.	With 4 children.	With 5 children.	With 6 children.	With 7 children and over.
	Including ante-nuptial conceptions	Excluding ante-nuptial conceptions							
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
1887	33·74	27·24	28·83	29·77	31·42	28·43	32·18	33·32	20·79
1888	33·19	26·69	27·72	30·00	31·44	28·78	31·71	31·61	21·46
1889	31·26	24·76	24·76	27·86	29·70	28·28	29·61	28·53	20·48
1890	34·29	27·79	27·02	29·49	29·32	25·32	27·08	26·62	19·46
1891	33·86	27·36	26·16	30·44	26·35	25·70	23·51	23·66	19·97
1892	31·86	25·36	23·63	27·06	26·51	25·79	25·98	26·94	20·75
1893	31·27	24·77	22·49	26·42	25·79	25·29	25·01	25·64	20·76
1894	29·10	22·24	22·14	25·27	23·56	23·25	22·80	24·00	20·22
1895	28·13	20·75	21·78	25·03	22·48	22·54	22·76	22·04	19·28
1896	26·74	19·34	19·73	22·87	20·89	20·14	20·06	20·50	17·95
1897	26·31	18·81	19·94	22·88	20·63	20·24	19·56	20·11	18·38
1898	26·51	19·36	18·76	20·71	19·80	18·43	18·04	18·55	17·67

It is a natural expectation that women who have been mothers should be desirous of avoiding the cares incidental to child-bearing for as long a time as possible, and that, therefore, the interval between a woman's confinements should grow longer and longer according to the number of her children, but the figures just given indicate a condition of things very little realised. It is true that there has been a growing indisposition to bear children ; but this indisposition exists from the date of marriage, affecting the birth-rate at every age and stage of married life, and does not increase to any great extent with the number of children already borne; for, as the previous table and the following summary show, there is little difference in the proportion of births amongst women within the period of child-bearing, whether such women have borne few or many children. In regard to women without issue, the figures require qualification. The rates given are for all women, including those who are barren, and in regard to whom there is really not any expectation of issue. Subsequent tables show that the number of such women is very large (about 22·6 per hundred), and if these be excluded from the comparison, the real expectation of a woman who is without issue having a child is increased to 31·34 per cent.; and this is the proper figure to set against the proportions for women of the other groups. The

averages for the twelve years for each group are as follows, only married women under 50 years of age being included :—

Birth-rate per annum for every 100 women.

Without children, excluding antenuptial conceptions (apparent)...	23·25
,, ,, ,, (real)	31·34
With 1 child.....	23·24
,, 2 children	26·27
,, 3 ,, ...	25·14
,, 4 ,, ...	23·99
,, 5 ,, ...	24·16
,, 6 ,, ...	24·46
,, 7 ,, and over	19·76

Referring to Table VI, on the preceding page, it will be seen that there has been an astonishing decline in the number of children born to women of all classes. Amongst those who have already had seven children the rates were not materially lower during the last half than during the first half of the period covered by the table, such difference as there is being due in part to the separation of husbands and wives owing to slackness of work following the bank crisis of 1893, and in part to the fact that the failure of conception in the other classes has had the effect of depriving this group of the hitherto customary accessions of fertile women, with the result that the class of women with seven children and over is now more largely composed than in the earlier years of the table, of women approaching the limit of child-bearing. The first-mentioned cause has, of course, affected the birth-rates of all classes; but as the decline from 1887 to 1898, in the birth-rate of women with seven children and upwards, has only been a little more than one-seventh, no greater ratio can be allowed on the same score to the other classes; so that the bulk of the decrease is manifestly attributable to a very different cause.

The proportion of women without previous issue to whom children were born during the five years, 1887–1891, averaged 33·27 per cent., including births due to antenuptial conception, and 26·77 per cent. excluding such births; from 1891 the rate fell year after year, until, in 1897, it was 26·31 per cent. including, and 18·81 per cent. excluding, births of antenuptial conception. Where, therefore, there were 100 births due to post-nuptial conception up to 1891, there are now only 70 births. The year 1891 also roughly marks the beginning of the serious decline in the births of second and third children; but the falling off in the proportion of women, with already three or more children, who again became mothers began to show a decline as early as 1888. If the birth rates of 1887 had been maintained in 1898 there would have been 47,691 children instead of 33,353 actually born,

a decline of 14,338 births in one year, the falling off being thus distributed—

First births	1,972
Second ,,	2,949
Third ,,	958
Fourth ,,	2,295
Fifth ,,	1,690
Sixth ,,	1,989
Seventh ,,	1,652
Eighth and over	833
Total	14,338

The evenness maintained in the rates of birth of the various groups, as compared with one another, notwithstanding the great and persistent decline in each group, assuredly points to the fact that there is a large section of the community to whom the practice of prevention is unknown, and who accept child-bearing as a condition of married life from which they do not take means to escape. In thus resigning themselves to the bearing of large families there are some who are influenced by the force of religious scruples, and these comprise a large proportion of the child-bearing class: there are others to whom children come as an acceptable burthen, they believe in the scriptural counsel, "Happy is the man who hath his quiver full"; but it is to be feared that the largest class of all is comprised of those who, though unequal to the responsibilities of a large family, are as fertile as they are unfit.

It would have been interesting to have pursued the inquiry further, in order to discover whether the birth-rate has declined more in one class of the population than in another, but the information available does not admit of this being done with that satisfying accuracy that statistics can alone supply, still there is sufficient evidence to allow of the conclusion that it is amongst persons whose means are most adequate to the proper rearing of children that the smaller families are found.

Besides what has already been given, two other interesting divisions of the data in regard to families are possible, first of mothers according to the place of their birth, and second of fathers according to the callings pursued by them at the time of their death. The average families of women according to their place of birth were as follow :—

Birthplace.	Children to each Mother.
Australasia	4·73
England and Wales	5·50
Scotland	5·71
Ireland	5·68
European Countries	5·15

To make information of the kind just given conclusive, the ages of the women ought to be taken into consideration. This can be done to a limited extent only ; but there can be no doubt that Australian-born women have not had in the past as many children as women of European birth. As already explained, these averages relate to women who married a generation ago, and whose average family is 5·31 ; for women of to-day this average has fallen to 4·04, and so far as those of Australasian birth are concerned, the number of children set down above is altogether too high, and there appears to be sufficient warrant for the assumption that their offspring do not on an average number as many as four, probably not more than 3·5.

A statement of the number of children to a family according to the social condition of parents cannot be given, the nearest approach to such being the following classification of families according to the occupations of the fathers. The figures are based on the records of earlier unions ; a column showing the probable size of families of recent marriages has, however, been added :—

Occupations.	Children to a Family.	
	Earlier Marriages.	Recent Marriages.
Agricultural	6·7	5·1
Pastoral and Dairying	5·7	4·3
Industrial	5·2	3·9
Mining	5·1	3·9
Domestic	4·8	3·6
Commercial	4·7	3·6
Transport (sea and land)	4·7	3·5
Professional	4·4	3·3

The demand for labour in agricultural as well as in pastoral and dairy-farming pursuits is constant, and it has always happened in Australia that where there is a demand for labour there is a demand for children, and when there is such demand, children are born. For the purposes of the table some of the groups are unsatisfactory, as they comprise persons living under absolutely different social and material conditions. Included in industrial pursuits are the manufacturers and employers as well as the manual workers ; and in the commercial class are the great bankers and traders, as well as their clerks, storemen, and labourers. Under the heading of transport are railway employees and seamen as well as persons engaged in other forms of land carriage. It is very probable that, if a separation could be made, it would be found that the higher ranks in each class approach more nearly in the number of their children to the professional than to the class in which they are actually included.

Number of Children to a Marriage.

It has been usual amongst statisticians to estimate the number of children born to a marriage by an empirical formula, based on the results of the Swedish observations. To arrive at an average, the number of legitimate births in a given year is divided by the number of marriages contracted in a twelvemonth six years previously, the interval between the mean age of marriage and the mean age of mothers corresponding to that period. This rule cannot, however, be applied to New South Wales or to Australia generally, where the marriage rate has declined during the past ten years from 7·83 to 6·41 per thousand of the total population. For New South Wales, the number of offspring to a marriage can be directly ascertained from the registration of deaths, as the offspring of every person who dies are enumerated in the record of his or her death. The number can also be ascertained indirectly from the registrations of births. Elsewhere in this paper will be found the probability of a birth to married women of different ages, and by using these figures and a joint life table the probable number of children to a marriage can be ascertained. The detailed figures of these computations will be found in Appendix G.

The great bulk of the population contract only one marriage. The percentage of re-marriage is, for men 7·52, and for women 7·46. The average number of children born to each man who marries, including second, third, etc., marriages, is about 0·18 in excess of the number to each woman; the difference being due to the fact that there are more women who become mothers than men who become fathers.

As might be supposed, the age of the woman at marriage is the chief factor in determining the number of her children, the younger the age the more numerous the offspring, and this rule appears to hold even where the woman marries at an immature age. The following table gives the average births to women marrying at ages from 20 years to 50 years; outside these limits the information is not full enough to ensure a proper average. Two sets of figures are given, one from the death registers, herein termed earlier marriages, as the occurrence of these marriages was about thirty-one years ago; and the other for women of recent marriage. For the earlier marriages the average number of children is 5·31, but for recent marriages only 4·04, showing a decline of 1·27. The table shows the effect upon the constitution of families which the restriction to conception disclosed by previous tables has brought about. The decline in the actual number of children born increases from the younger ages to a maximum at age 27 years, at which year there has been a decrease from 4·25 to 2·99 children per family, representing 1·26 less children per hundred families than formerly. Looking at the decline as a matter of ratio, the table shows that with the increasing age at marriage there has been an augmented decline in the proportion of children per family, for the number of children from recent marriages is now less than those born to earlier

marriages at age 20 by 15 per cent., at age 25 by 25 per cent., at age 30 by 35 per cent., at age 35 by 41 per cent., at age 40 by 60 per cent., and so on.

Table VII.—Average number of children born to women marrying at the undermentioned ages :—

Age at Marriage.	Average Number of Children to each Marriage.		Age at Marriage.	Average Number of Children to each Marriage.	
	Ascertained from Deaths of Married Women, 1893-98. Earlier Marriages.	Computed from Records of Births. Recent Marriages.		Ascertained from Deaths of Married Women, 1893-98. Earlier Marriages.	Computed from Records of Births Recent Marriages.
16	7·24	.....	33	2·48	1·524
17	6·99	.....	34	2·20	1·323
18	6·71	.....	35	1·92	1·132
19	6·42	.....	36	1·71	·956
20	6·15	5·267	37	1·50	·790
21	5·88	4·930	38	1·30	·639
22	5·61	4·584	39	1·10	·502
23	5·34	4·244	40	·96	·387
24	5·07	3·913	41	·82	·287
25	4·80	3·596	42	·61	·206
26	4·53	3·288	43	·40	·143
27	4·25	2·992	44	·29	·095
28	3·96	2·714	45	·18	·060
29	3·66	2·450	46	·13	·035
30	3·36	2·199	47	·08	·019
31	3·07	1·962	48	·04	·009
32	2·78	1·736	49	.....	·004

It will be seen that the chances are now against a child being born to a woman who marries after attaining the age of 36 years, which is four years earlier than appears to have been the case some years ago. Women who marry after age 30 cannot expect more than two children, and after age 26 more than three children. It should be borne in mind, however, that the averages given above include barren women, and that the number of such women has largely increased. Including only fertile women, it will be found that the number of children per family is still much less than was formerly the case. The following are the averages for the ages stated :—

Age.	Earlier Marriages.	Recent Marriages.
23	5·8	5·3
27	4·6	3·7
32	3·3	2·5
37	2·3	1·5
42	1·4	1·0

The statistics of the last six years (1893–98) show that as many as 29 children have been born to the same father and 21 to the same mother. Particulars in regard to 17,738 married men were obtained, with the following results :—

Number of Children.	Number of Deaths of men ascertained to have been married.	Proportion per 1,000 Married Men.
0	2,167	122·17
1	1,414	79·72
2	1,494	84·23
3	1,485	83·72
4	1,446	81·52
5	1,441	81·24
6	1,413	79·66
7	1,385	78·08
8	1,343	75·71
9	1,095	61·73
10	1,029	58·01
11	787	44·37
12	536	30·22
13	315	17·76
14	182	10·26
15	94	5·30
16	48	2·70
over 16	64	3·60
Total ...	17,738	1,000·00

Similarly in regard to 16,183 married women :—

Number of Children.	Number of Deaths of Women ascertained to have been married.	Proportion per 1,000 Married Women.
0	1,870	115·55
1	1,463	90·40
2	1,356	83·79
3	1,326	81·94
4	1,412	87·25
5	1,392	86·02
6	1,373	84·84
7	1,284	79·34
8	1,276	78·85
9	1,016	62·78
10	840	51·91
11	612	37·82
12	453	27·99
13	266	16·44
14	124	7·66
15	54	3·34
Over 15	66	4·08
Total ...	16,183	1,000·00

Considered from the standpoint of public polity, the decline in the birth-rate is an extremely serious matter. If the inflow of population from outside Australasia, which is at present very slight, were to cease altogether, the birth and death rates would probably adjust themselves as follows :—

Birth-rate.....	2·84	per hundred of the population.
Death-rate	1·26	,, ,, ,, ,,
Natural increase	1·68	,, ,, ,, ,,

Ten years ago the natural increase for New South Wales was 2·26 per cent., and thirty years ago 2·47 per cent. Part of this decline is natural, and due to the cessation of the immigration of young married women, but for the past ten years the population has been in a normal condition, and the decline in the natural increase is due to the precaution taken against the birth of children. Nor is the phenomenon confined to New South Wales alone of the Australasian colonies, for the records show that it is common to all members of the group. The rates for the four eastern colonies since 1861 were as shown in the following statement. The proportions are for married women under 50 years of age.

Year.	New South Wales.	Victoria.	Queensland.	New Zealand.
	per cent.	per cent.	per cent.	per cen .
1861	30·61	28·54	.....	.....
1871	30·12	26·97	.....	.....
1881	29·74	25·20	28·80	28·16
1891	26·39	26·51	29·45	23·86
1898	20·12	19·30	20·80	21·42

An examination of the rates for the years between 1891 and 1898 shows that the decline has been persistent and regular, so that it is even probable that minimum rates have not yet been reached ; on the contrary, a further decline must be looked for in some of the provinces, if not in all. The tendency to restrict the birth-rate is a very common feature of the social condition of old countries ; but the extension of this phenomenon to new countries where population is so much desired is a matter claiming the deepest attention.

First Births.

The discussion of the phenomena attending first births is greatly affected by the circumstance that nearly one-third (32·3 per cent.) of all first births are due to pre-nuptial conception. During the six years, 1893 to 1898, there were registered in New South Wales 41,384 legitimate first births, and of these, 13,366 occurred within nine months of the

marriage of the parents, and are therefore of pre-nuptial conception, with the exception of a small number born seven months after marriage. The proportion of these seven-months' children is so small that their exclusion from the number of those post-nuptially conceived will not affect, in any appreciable degree, the conclusions hereafter arrived at.

It has already been shown that the probability of a marriage proving fertile rapidly declines after a woman has attained the age of 30 years; but where a marriage proves fertile, as the following table shows, the period elapsing from marriage to the birth of the first child of post-nuptial conception averages the same for all women marrying at ages below 40 years. This average period is 19·4 months, ranging between 18·3 and 21·5 months.

Table VIII.—Average period from Marriage to Birth of first Child. (Post-nuptial conception only.)

Age of Mother.	Birth after Marriage.	Age of Mother.	Birth after Marriage.
years.	months.	years.	months.
17	19·7	29	18·6
18	19·6	30	20·8
19	19·0	31	21·5
20	19·0	32	20·1
21	19·4	33	19·7
22	19·3	34	18·5
23	18·7	35	21·4
24	19·5	36	21·9
25	20·2	37	18·3
26	19·8	38	18·9
27	19·4	39	19·9
28	18·4		

Although the average period elapsing from marriage to the birth of the first child is fairly regular for all ages, the times vary with individuals from 9 months to 22 years. The following table shows the period elapsing between marriage and the birth of a first child for all women whose first confinement took place in the years 1893–98. The figures are arranged in months up to the 23rd month, and beyond that in years. They require adjusting, however, before they can be used for comparative purposes, by reason of the fact that the population of the colony has not been stationary during the period between the date of the earliest and the latest marriages, the births due to which are therein recorded. For instance, the table shows that there were 12 females who gave birth to their first child 13 years after marriage. Thirteen years from the mean period under review was the year 1882, and in that year there were only 6,948 marriages, compared with 8,274, the present mean rate (1893–98). The number 12 should, therefore, be multiplied by $\frac{8274}{6948}$ to place the year 1882 on a proper comparative basis with 1893–98; the value thus obtained is 14. All years beyond

the sixth should be similarly dealt with, and they have been so adjusted in the following table (column 4):—

Table IX.—Number of Births of First Children of post-nuptial conception, with times elapsing since marriage, 1893–98.

Period from Marriage to Birth of First Child.	Number of First Children born in six years (1893–98).	Rates to adjust Figures in preceding column to allow for Increase in Marriages.	Adjusted Figures.
(1.)	(2.)	(3.)	(4.)
9 months	4,562	No adjustment.	4,562
10 ,,	4,407	,,	4,407
11 ,,	3,078	,,	3,078
12 ,,	2,281	,,	2,281
13 ,,	1,670	,,	1,670
14 ,,	1,339	,,	1,339
15 ,,	1,158	,,	1,158
16 ,,	953	,,	953
17 ,,	749	,,	749
18 ,,	659	,,	659
19 ,,	587	,,	587
20 ,,	540	,,	540
21 ,,	488	,,	488
22 ,,	424	,,	424
23 ,,	381	,,	381
2 years and under 3	2,535	,,	2,535
3 ,, ,, 4	928	,,	928
4 ,, ,, 5	453	,,	453
5 ,, ,, 6	256	,,	256
6 ,, ,, 7	158	1·099	174
7 ,, ,, 8	107	1·055	113
8 ,, ,, 9	76	1·090	83
9 ,, ,, 10	69	1·059	73
10 ,, ,, 11	44	1·086	48
11 ,, ,, 12	34	1·106	38
12 ,, ,, 13	30	1·117	34
13 ,, ,, 14	12	1·191	14
14 ,, ,, 15	13	1·317	17
15 ,, ,, 16	11	1·485	16
16 ,, ,, 17	6	1·535	9
17 ,, ,, 18	5	1·556	8
18 ,, ,, 19	2	1·657	3
20 ,, ,, 21	1	1·797	2
22 ,, ,, 23	2	1·887	4
Total	28,018		28,084

The marriages during the six years numbered 49,641 ; but of these 13,366 were attended with ante-nuptial conception, leaving 36,275 "unprejudiced" marriages, and to these marriages the table shows that 28,084 first children were born. For convenience sake the figures in column (4) have been raised to the basis of 10,000 marriages, and the particulars are given in Table X. The results are shown up to the

thirty-fifth month as well as for each year, commencing with the third. The values for the months between the twenty-third and the thirty-fifth have been calculated and interpolated.

Table X.—First Births of post-nuptial conception per 10,000 marriages.

Date of Birth after Marriage.	Number of Births.	First Births to end of each period.		Date of Birth after Marriage.	Number of Births.	First Births to end of each period.	
		Number.	Per cent. of Total Births.			Number.	Per cent. of Total Births.
months.				years.			
9	1,258	1,258	16·25	3 & under 4	256	7,373	95·24
10	1,215	2,473	31·94	4 ,, 5	125	7,498	96·85
11	848	3,321	42·90	5 ,, 6	71	7,569	97·77
12	629	3,950	51·02	6 ,, 7	48	7,617	98·39
13	460	4,410	56·96	7 ,, 8	31	7,648	98·79
14	369	4,779	61·73	8 ,, 9	23	7,671	99·09
15	319	5,098	65·85	9 ,, 10	20	7,691	99·34
16	263	5,361	69·25	10 ,, 11	13	7,704	99·51
17	207	5,568	71·92	11 ,, 12	10	7,714	99·64
18	182	5,750	74·27	12 ,, 13	9	7,723	99·76
19	162	5,912	76·37	13 ,, 14	4	7,727	99·81
20	149	6,061	78·29	14 ,, 15	4	7,731	99·86
21	135	6,196	80·03	15 ,, 16	4	7,735	99·91
22	117	6,313	81·55	16 ,, 17	2	7,737	99·94
23	105	6,418	82·90	17 ,, 18	2	7,739	99·96
24	96	6,514	84·14	18 ,, 19	1	7,740	99·98
25	88	6,602	85·28	20 ,, 21	1	7,741	99·99
26	81	6,683	86·32	22 ,, 23	1	7,742	100·00
27	73	6,756	87·27	.....	...	.....	.....
28	66	6,822	88·12	.....	...	.....	.....
29	59	6,881	88·88	.....	...	.....	.....
30	53	6,934	89·57	.....	...	.....	.....
31	47	6,981	90·17	.....	...	.....	.....
32	42	7,023	90·72	.....	...	.....	.....
33	36	7,059	91·18	.....	...	.....	.....
34	31	7,090	91·58	.....	...	.....	.....
35	27	7,117	91·93	.....	...	.....	.....

Barren Marriages.

The number of unions out of 10,000 just entered into which would remain unbroken during the period covered by the preceding table cannot be given without going into the question of the ages of the

parties contracting the marriages. An approximation may be arrived at by taking the average ages of persons who marry and computing the probability of a couple of such ages surviving for 18 years, at the end of which time practically all the marriages are proved fertile or not. The average age of marriage in New South Wales is, for females 24 years, and for males 28·5 years. The survivors for each year out of 10,000 couples would be as shown in the following table (No. XI). It has not been thought necessary to show the various steps by which the figures are arrived at, for which the reader is referred to chapter XXII of the author's Report on the Eleventh Census of New South Wales.

Table XI.—Couples Surviving at end of each year out of 10,000.

Year of Marriage.	Married.	Year of Marriage.	Married.
0	10,000	10	8,712
1	9,888	11	8,559
2	9,771	12	8,404
3	9,650	13	8,245
4	9,526	14	8,084
5	9,400	15	7,921
6	9,271	16	7,753
7	9,138	17	7,582
8	9,001	18	7,409
9	8,859		

The preceding table (No. X) shows the number of marriages that will prove fruitful is 7,742 out of 10,000 taking place without ante-nuptial conception. The difference, 2,258, does not represent marriages in which one or other of the parties is sterile, because some of the marriages will be broken by death before being proved. It will be found on reference to Tables X and XI, that of 10,000 couples there were 3,321 to whom children were born in the first year, leaving 6,679 who did not bear. In this year 112 unions were broken by death, and 75 of these unions were of those who had no children ; hence the number of couples so far barren would be 6,604. Of these 6,604 it is found that 3,097 bore children during the second year, leaving 3,507 who did not bear. During the second year 117 unions were broken by death, and of these 42 were of women who were childless ; so that at the end of the second year there were 3,465 (viz., 3,507 – 42) who were still barren. Dealing with each year in this fashion, it will be found that at the end of the eighteenth year there were 1,586 women living who were still barren, and that 674 women had died childless, of whom 92 would have borne had they survived the full period, so that 21·68 per cent. represents the theoretical number of unions in which the absence of children is due to barrenness or prevention of conception, while the actually ascertained number, including marriages cut short by death before being completely tested, is 22·60 per cent.

Making the necessary adjustments in the manner just set forth for unions broken by death, the following percentages represent the probability of a marriage proving fruitful after having subsisted the number of years indicated without a child having been born :—

	Per cent.
15 years without children	0·6
14 ,, ,, ,,	0·9
13 ,, ,, ,,	1·1
12 ,, ,, ,,	1·5
11 ,, ,, ,,	2·0
10 ,, ,, ,,	2·6
9 ,, ,, ,,	3·6
8 ,, ,, ,,	4·6
7 ,, ,, ,,	5·9
6 ,, ,, ,,	7·9
5 ,, ,, ,,	10·7
4 ,, ,, ,,	15·1
3 ,, ,, ,,	22·9
2 ,, ,, ,,	38·2
1 ,, ,, ,,	66·9

The probability of any marriage not prejudiced by ante-nuptial consummation proving fruitful is 77·4 per cent. and the probability of an unfruitful marriage 22·6 per cent. ; while the probability of all marriages, whether attended with ante-nuptial conception or not, is 83·5 per cent., making the actual number of unfruitful marriages 16·5 per cent.

Effect of Postponement of Marriage on Fertility.

One aspect of the question of the effect of postponement of marriage upon the child-bearing of a woman has already been touched upon, and Tables III and IV show there is a rapid decline in the fertility of marriages as the age of the woman at marriage advances. But as between persons of the same age, the absolute superiority of the woman who has already borne children compared with the newly married can only be asserted for ages over 30. If reference be made to Diagram A, it will be seen that there are shown thereon three curves relating to probabilities of a birth within twelve months—(*a*) amongst all wives, (*b*) amongst women who have not already borne children, and (*c*) amongst women who have already borne children.

Curve (*a*) is the same as that shown on Diagram C, and at first sight it might be thought that it ought to run between the other curves ; but as it represents the probability for all married women, including those who are barren, and in respect of whom there is, of course, no real probability, it is not necessarily comparable with curve (*c*), which includes only women who have borne children and who may yet again bear.

Curve (*b*) represents the ratio of first births to marriages, excluding from each the number attended with ante-nuptial conception ; and the following table shows how the ratios have been arrived at :—

Table XII.—Probability of First Births from 9 to 12 months after Marriage.

Age Group. (1.)	Mean Annual Marriages. (2.)	Mean Annual Births from 9 to 12 months after Marriage. (3.)	Ante-nuptial Conceptions. (4.)	Column (2), less Column (4). (5.)	Probability of Births from 9 to 12 months after Marriage. = Col. 3. / Col. 5.
16 and under 21...	2,082	436	968	1,114	39·14
21 ,, 25...	3,370	828	889	2,481	33·37
25 ,, 30...	1,981	528	353	1,628	32·43
30 ,, 35...	646	135	89	557	24·24
35 ,, 40...	331	33	39	292	11·30
40 ,, 45 ..	140	5	8	132	3·79
45 ,, 50...	78	0	0	78	0·00

The values of curve (*c*) are derived from the data already used in the tables relating to the decline in the birth-rate. These tables show the number of married women, and the number of children borne by them : thus, for age group 18 and under 21, there were 5,388 married women (see Appendix B), of whom 3,460 had borne a child ; so that the latter figure represents the number of married women within the group to whom other than a first birth was possible. The number of such births was 595; so that the probability of a woman between these ages having another child within a year is $\frac{595}{3460}$, or 17·20 per cent. Proceeding similarly for the other age groups, the following results are established:—

Table XIII.—Probability of another birth to Married Women of various ages.

Ages of Mothers.	Number who have already borne.	Annual number of births other than first.	Probability of having another child within 12 months.
18 and under 21.....	3,460	595	17·20
21 ,, 25.....	15,156	4,024	26·55
25 ,, 30.....	29,392	8,383	28·52
30 ,, 35.....	29,406	7,821	26·60
35 ,, 40.....	22,918	5,543	24·19
40 ,, 45.....	17,642	2,071	11·74
45 ,, 50.....	13,973	224	1·60

A comparison of the curves (Diagram A) shows that for the earlier ages the probability of a woman just marrying having her first child between the ninth and twelfth month after marriage is greater than

that of a woman of the same age who has had previous issue having another child within twelve months, the probability being twice as great at age 20, the first year included in the diagram. This statement, however, requires qualification. The expectation of a woman, who has already had a child, bearing another within a year is, at age 20, only 20 per hundred mothers, rising to a little over 28 per hundred at age 28, then falling as the age increases. It is not to be supposed that women of 20 to 27 years of age show less fecundity than women of 28 years, on the contrary, the curve relating to newly-married women shows that they are more fecund than their seniors, and the explanation of the anomaly is, that there are a large number of mothers of ages below 28 who have recently given birth to children, while the number of such women over 28 years of age is proportionately much smaller. Accepting the figures as they happen to work out, it will be seen that the curves of probability for the newly married and for women who have already had previous issue, continually approach each other until they intersect between ages 30 and 31. At and beyond age 31 the probabilities are reversed, and at age 38 the probability of a newly-married woman having a child under the conditions named is less than half that of a woman with previous issue. It would thus appear that the reproductive system if unused is apt to become inoperative, as it cannot be supposed that prevention is practised more amongst women newly married than amongst those who have already had experience of the troubles of maternity.

Birth-rate to Couples of Various Ages.

The following information relating to the probability of a child being born to couples of given ages is founded on the births registered in the five years 1893–97, the relative numbers of husbands and wives of each age for the mean of this period being obtained by raising the numbers ascertained at the census of 1891 proportionately to the total increase of population, viz., by multiplying by the constant 1·117, a proper adjustment being made for wives and husbands separated at the time of the census. The total births are shown in Appendix A, and the number of couples of various ages in Appendix B.

The ratios of the various groups of the one table to the corresponding groups of the other table would, of course, give the probabilities of a birth during the year to parents of the tabulated ages; but the probabilities thus arrived at would include the births of ante-nuptial conception, and these being far more numerous amongst the younger ages of women would tend to exaggerate the fertility of those ages. In order to remove this element, the cases of ante-nuptial conception have been subtracted both from the number of parents and from the births and the ratios instituted between these reduced values. In this way the annual natality shown in Appendices C and D was derived. The results of Appendix C were then curved (Diagrams B and C), and from the curves the corrected natality (Table XIV) given below was deduced.

Monogenous Natality.

The husbands under 20 years of age numbered only 84, and as reliable deductions cannot be made from so small an experience the following table commences with the annual natality for husbands of age 21.

Table XIV.—Annual Natality per 100 Husbands or Wives.

HUSBANDS.				WIVES.			
Ages.	Annual Natality per 100.	Ages.	Annual Natality per 100.	Ages.	Annual Natality per 100.	Ages.	Annual Natality per 100.
21	31·8	46	13·7	18	24·0	35	23·7
22	31·5	47	12·4	19	26·6	36	23·3
23	31·1	48	11·2	20	28·5	37	22·6
24	30·4	49	10·3	21	29·5	38	21·0
25	29·7	50	9·6	22	30·0	39	19·0
26	29·2	51	9·0	23	30·1	40	17·0
27	28·6	52	8·5	24	29·7	41	14·4
28	28·2	53	7·9	25	29·2	42	12·0
29	27·9	54	7·6	26	28·7	43	9·5
30	27·6	55	7·3	27	28·2	44	7·5
31	27·4	56	6·8	28	27·5	45	5·6
32	27·1	57	6·5	29	27·0	46	4·0
33	26·8	58	6·4	30	26·4	47	2·3
34	26·4	59	6·1	31	25·8	48	1·4
35	26·0	60	5·8	32	25·4	49	0·8
36	25·4	61	5·6	33	24·7	50	0·5
37	24·8	62	5·4	34	24·2		
38	24·2	63	5·2				
39	23·2	64	5·0				
40	22·0	65	4·9				
41	20·7	66	4·7				
42	19·5	67	4·5				
43	18·2	68	4·3				
44	16·7	69	4·2				
45	15·3	70	4·0				

The figures relating to husbands present no peculiar features. The lowest age is that of the greatest natality, the fall in the proportions being fairly regular from year to year, until between the thirty-fifth and fortieth year it becomes more rapid. This lessening in the rates at the time mentioned cannot altogether be ascribed to failure on the part of the males; it is coincident with a fall in the female natality and is mainly traceable to that cause. Nevertheless there is a decided weakening in the fertility of males as the period of middle age is entered upon. This will be clearly seen by referring to Diagram D, which illustrates the probability of a birth to women of uniform ages with husbands at various stages of life.

The natality of wives increases from the lowest age (18 years), and attains its maximum at age 23, when it immediately begins to decline, and continues to do so with increasing rapidity as the limits of child-bearing are approached. Age 37 marks the nearness of the grand climacteric. Up to that year the birth rate of wives which has been gradually declining now suffers so complete a change as to warrant the supposition that a large number of women reach the limit of their child-bearing period even thus early.

Natality statistics have been much neglected, and there are few countries with which the New South Wales rates can be compared; and even where there are statistics available, comparisons fail in their chief interest, because the inportance of births due to ante-nuptial conception has been overlooked.

The distinguished statistician Körösi has published statistics of the natality of Budapest, and a comparison with the New South Wales figures is of great interest. Taking the husbands' natality first, it is found that in New South Wales the maximum generative power is at the youngest age tabulated, viz., 31·8 per cent. at age 21 years, whilst the Budapest statistics show the maximum at age 26, the rate being 35·3 per cent. The Budapest table starts at age 23 with a natality rate of 33 per cent., rising to a maximum of 35·3 at age 26, and falling off to 0·5 per cent. at age 64, the oldest tabulated age. In the New South Wales table, the corresponding percentages are—for age 23 years, 31·1 per cent.; for age 26 years, 29·2; and at age 64 years, 5·0 per cent. Although between the ages 24 and 32 the Budapest natality rate is higher than that of New South Wales, yet beyond that age the latter far exceeds the former, the New South Wales natality rate at age 70 (4·0 per cent.) being higher than the Budapest rate at age 52. The husbands' fertility is greater, and much longer sustained, than in Budapest. Referring to the wives' natality, there are such great differences between the results of the two series of statistics as to warrant the assumption that the births of ante-nuptial conception have not been withdrawn from the investigation. Thus, at age 18, the Budapest natality is 40·0 per cent., while the New South Wales rate is only 24·0 per cent.; but had no

adjustment been made for ante-nuptial conception, the latter would have been 36·7 per cent. The following table illustrates these differences at the younger ages :—

Age.	Budapest natality—Wives.	New South Wales natality—Wives.	
		Unadjusted for ante-nuptial conceptions.	Adjusted.
18	40·0	36·7	24·0
19	40·3	35·9	26·6
20	39·7	35·0	28·5
21	38·5	34·3	29·5
22	37·2	33·5	30·0
23	35·3	32·8	30·1
24	33·4	31·9	29·7
25	31·6	31·2	29·2
26	30·1	30·1	28·7
27	28·9	29·0	28·2
28	27·6	28·2	27·5
29	25·9	27·4	27·0
30	24·0	26·7	26·4
31	22·3	26·1	25·8
32	20·9	25·6	25·4
33	19·6	25·0	24·7
34	18·2	24·4	24·2
35	17·0	23·9	23·7

It will thus be seen that at the younger ages the Budapest results are much higher than the adjusted figures of New South Wales, but very nearly equal to the unadjusted ; and this confirms the opinion that the Budapest figures have not been adjusted for ante-nuptial conception. From age 28 the New South Wales figures, even after adjustment, begin to exceed the Budapest, the difference increasing as the ages of the wives increase. It is thus plain that the fertility of the wives, as well as of the husbands, of New South Wales is much higher and longer sustained than those of Budapest.

The necessity for adjustment on account of ante-nuptial conception may easily be overlooked, but its importance will appear from the following example of women between the ages of 20 and 25. There are 22,717 of such wives in New South Wales, to whom there were born

during one year 7,649 children. The probability of a birth to one such wife would therefore be $\frac{7649}{22717} = \cdot 337$, if there were no such thing as ante-nuptial intercourse. But more than 29 per cent. of the marriages amongst women of these ages is preceded by conception, and the probability of a birth to such marriages is therefore unity. The probability derived above (·337) is the average of all the married at the age specified, whether conception anticipated or succeeded marriage; and it would clearly be wrong to say that the probability of a birth to a woman aged between 20 and 25 years, just marrying, and with whom conception had not taken place, would be ·337. In the present case the number of women between 20 and 25 to whom children were born within nine months of marriage is 1,139. If, therefore, 1,139 be subtracted from the number of wives, and also from the number of births, the ratio of the latter to the former will give the true probability in the case of an unprejudiced marriage. Thus, $\frac{7649 - 1139}{22717 - 1139} = \frac{6510}{21578} = \cdot 302$. the true probability.

Bigenous Natality.

The numbers of the married of each sex under 20 years of age are too small to permit of their being dealt with bigenously. The joint-birth table on page 38, therefore, begins with wives at age 20, and husbands, aged 22.

The results of the investigation permit of the following conclusions being drawn: First, that husbands up to the age of 47 have the greater chance of becoming fathers the younger the wives (23 years of age, however, being the minimum age limit in regard to which it is possible to speak with certainty). Husbands between 47 and 65 have also the greatest chance with the younger wives; but information in regard to such husbands is available only for those with wives of 28 years of age and upwards. Secondly, that wives up to the age of 35 have the greater chance of becoming mothers the younger the husband, although with husbands between the ages of 28 and 36 the chance is practically the same. Wives from age 35 up to the limit of child-bearing age have the greatest chance with husbands of their own age.

From Körösi's investigation into the natality statistics of the chief Hungarian city, Mr. F. Galton deduced the law that there is a constant number from which, if the united ages of the parents be subtracted, the difference approximates to the number per cent. of parents to whom children will be born during one year; but the present investigation shows that Galton's law does not hold in New South Wales, nor does any analogous law obtain. The general law governing natality is undoubtedly that, with one exception, the younger the parents the greater the probability of a birth. The exception is with wives approaching and at the limit of child-bearing age. A woman about the limit of child-bearing possesses a greater chance of becoming a mother with a husband of or about her own age. In the case of a woman whose age

is between 40 and 45, the annual natality per cent. with a husband of between 25 and 30 is 10, whilst with a husband of between 40 and 45 it is 12·7 per cent., declining rapidly, until with a husband whose age is between 65 and 70 it is only 4·3 per cent. Similarly, though more strongly accentuated in the case of wives between 45 and 50, with husbands between 30 and 35 the rate is 1·3 per cent., rising to 1·9 with husbands of 45–50, and declining to 0·9 per cent. with husbands of 65–70.

Table XV gives the probability of a child being born to couples of various ages, and the subject is further illustrated by two diagrams. One (Diagram D) shows the number of children who will be born to wives of each year of age from 20 to 47 with husbands of different ages, and the other (Diagram E) shows what Körösi calls isogens or equal natality of joint ages. The diagrams show how much less important is the age of the father than that of the mother, and present many other interesting features which are sufficiently obvious as to need no comment. All the isogens tend to curve upwards ; but there are, nevertheless, long periods when the lines follow the wife's age with very little upward or downward variation. The same birth-rate prevails for mothers aged 27, whether the father's age is 30 or 36 years ; for mothers aged 30 with fathers of 29 or 35 ; for mothers aged 36 with fathers of 27 or 39 years, —and so on with other ages of mothers. On the other hand, there is a remarkable change in the direction of the isogens at ages of fathers from 39 to 46 years ; and it would seem that with mothers under 38 years of age, the probability of a birth is influenced as much by the father as by the mother—the older the father the younger must be the mother to obtain equal natality rates.

The less importance of the age of the father than that of the mother has been mentioned more than once, but even this statement must be taken with qualification. If Diagram D be referred to, it will be seen that for wives up to the age of 37 years, the lines indicating the probability of a birth to women of each age, with fathers of various ages, fall rapidly from the youngest age of father to a point between ages 25 and 30, then remain fairly horizontal for a somewhat lengthy period, but fall away rapidly from somewhere about age 40 (of husbands). This disposition is common to the natality lines of all ages of wives, and undoubtedly indicates a failure of fertility on the part of husbands when they reach their fortieth year. Two examples will suffice to illustrate the whole series of wife's curves. For wives aged 23 years the curve begins with husbands of 22 years with a birth-rate per hundred couples of 32 ; at age 27 (husbands) the birth-rate is reduced to 29·5, and for eleven years remains almost unchanged, for at age 38 (husbands) it is still 29 per cent., after which it rapidly declines. With wives 28 years of age the curve begins with a birth-rate of 31·6 per cent. at age 22 (husbands), and falls away to 27·8 per cent. at age 28 (husbands) ; for ten years the rate lies between 27 and 27·8 per cent., but after age 38 (husbands) it rapidly falls away.

Table XV.—Probability of a Birth to Couples of

Age of Husband.	AGE OF													
	20	21	22	23	24	25	26	27	28	29	30	31	32	33
22	29·9	30·9	31·6	32·0	32·1	32·1	32·1	32·0	31·6	31·0	30·3	29·5	28·7	...
23	29·1	30·2	31·1	31·5	31·4	31·4	31·3	31·1	30·8	30·2	29·6	28·9	28·2	...
24	28·3	29·5	30·5	30·9	30·7	30·7	30·5	30·3	29·9	29·4	28·9	28·2	27·6	...
25	27·6	28·9	29·9	30·3	30·2	30·0	29·8	29·5	29·2	28·7	28·3	27·7	27·2	...
26	27·1	28·4	29·5	29·9	29·7	29·5	29·2	28·8	28·5	28·1	27·7	27·3	26·8	...
27	26·6	28·0	29·1	29·5	29·3	29·0	28·7	28·3	28·0	27·6	27·3	26·9	26·5	25·9
28	26·4	27·9	29·0	29·4	29·1	28·8	28·5	28·1	27·8	27·4	27·1	26·7	26·4	25·9
29	26·5	27·9	29·0	29·4	29·1	28·8	28·5	28·1	27·8	27·4	27·0	26·7	26·3	25·8
30	26·5	27·8	29·0	29·4	29·1	28·8	28·5	28·1	27·8	27·4	27·0	26·7	26·3	25·8
31	26·6	28·0	29·0	29·4	29·1	28·8	28·5	28·1	27·8	27·4	27·0	26·7	26·3	25·8
32	26·7	28·0	29·0	29·4	29·1	28·8	28·5	28·1	27·8	27·4	27·0	26·7	26·3	25·8
33	...	...	...	29·4	29·1	28·7	28·4	28·1	27·8	27·4	27·0	26·6	26·3	25·8
34	...	...	...	29·3	29·0	28·7	28·4	28·1	27·8	27·4	27·0	26·6	26·2	25·7
35	...	...	...	29·2	28·9	28·6	28·3	28·0	27·7	27·3	26·9	26·5	26·2	25·7
36	...	...	...	29·2	28·9	28·6	28·3	28·0	27·7	27·3	26·9	26·5	26·1	25·7
37	...	...	...	29·1	28·8	28·5	28·2	27·9	27·6	27·2	26·8	26·4	26·1	25·7
38	...	...	...	29·0	28·7	28·3	28·1	27·7	27·4	27·0	26·6	26·2	25·8	25·5
39	...	...	...	28·9	28·5	28·1	27·8	27·3	26·9	26·6	26·1	25·7	25·4	25·1
40	...	...	...	28·7	28·3	27·7	27·3	26·8	26·4	26·0	25·6	25·2	24·9	24·7
41	...	...	...	28·7	28·1	27·5	26·9	26·3	25·8	25·4	25·1	24·7	24·4	24·2
42	...	...	...	28·5	27·9	27·1	26·5	25·8	25·3	24·8	24·5	24·2	23·9	23·7
43	...	...	...	28·0	27·3	26·6	25·9	25·2	24·6	24·2	23·9	23·6	23·3	23·1
44	...	...	...	27·1	26·4	25·8	25·1	24·4	23·9	23·5	23·2	22·9	22·6	22·4
45	...	...	...	26·2	25·6	25·0	24·3	23·7	23·2	22·7	22·4	22·1	21·9	21·7
46	...	...	...	25·2	24·6	24·1	23·5	23·0	22·5	22·0	21·7	21·4	21·2	21·0
47	...	...	...	24·1	23·6	23·2	22·7	22·2	21·8	21·3	21·0	20·7	20·5	20·3
48	...	...	...	...	...	...	...	...	21·1	20·8	20·5	20·2	19·9	19·7
49	...	...	...	...	...	...	...	...	20·7	20·4	20·1	19·9	19·7	19·5
50	...	...	...	...	...	...	...	...	20·4	20·1	19·9	19·7	19·5	19·3
51	...	...	...	...	...	...	...	...	20·0	19·8	19·7	19·5	19·3	19·1
52	...	...	...	...	...	...	...	...	19·7	19·6	19·5	19·3	19·1	18·9
53	...	...	...	...	...	...	...	...	...	...	...	...	...	18·9
54	...	...	...	...	...	...	...	...	...	...	...	...	...	18·9
55	...	...	...	...	...	...	...	...	...	...	...	...	...	18·8
56	...	...	...	...	...	...	...	...	...	...	...	...	...	18·8
57	...	...	...	...	...	...	...	...	...	...	...	...	...	18·8
58	...	...	...	...	...	...	...	...	...	...	...	...	...	...
59	...	...	...	...	...	...	...	...	...	...	...	...	...	...
60	...	...	...	...	...	...	...	...	...	...	...	...	...	...
61	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62	...	...	...	...	...	...	...	...	...	...	...	...	...	...
63	...	...	...	...	...	...	...	...	...	...	...	...	...	...
64	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Various Ages. (Yearly Birth Rate per 100 Couples.)

WIFE.																Age of Husband.
34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	
...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	22
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	25
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
25·3	24·6	23·9	23·2	...	...	...	...	...	...	...	...	...	...	...	...	27
25·3	24·6	23·9	23·2	...	...	...	..	...	...	...	...	...	...	...	...	28
25·2	24·6	23·9	23·2	...	...	...	...	...	...	...	...	...	...	...	...	29
25·2	24·6	23·9	23·2	...	...	...	...	..	...	...	...	...	...	...	...	30
25·2	24·6	23·9	23·3	...	...	...	...	...	...	...	...	...	...	...	...	31
25·2	24·6	24·0	23·4	22·2	20·1	17·6	15·0	12·1	...	...	...	...	...	...	...	32
25·2	24·6	24·0	23·5	22·3	20·3	17·9	15·2	12·3	...	...	...	...	...	...	...	33
25·2	24·6	24·1	23·6	22·5	20·5	18·2	15·6	12·6	...	...	...	...	...	...	...	34
25·2	24·7	24·2	23·7	22·7	20·8	18·5	15·9	12·9	...	...	...	...	...	...	...	35
25·2	24·8	24·3	23·9	22·9	21·0	18·8	16·2	13·2	...	...	...	...	...	...	...	36
25·2	24·9	24·5	24·1	23·1	21·3	19·0	16·4	13·4	10·6	8·4	6·3	4·4	2·4	1·2	0·9	37
25·1	24·7	24·4	24·1	23·2	21·4	19·2	16·6	13·6	10·8	8·5	6·5	4·5	2·5	1·2	0·9	38
24·8	24·4	24·1	23·9	23·0	21·3	19·1	16·7	13·8	11·0	8·7	6·7	4·6	2·6	1·3	0·9	39
24·4	24·1	23·8	23·6	22·8	21·1	19·1	16·7	13·9	11·1	8·8	6·8	4·7	2·7	1·3	0·9	40
23·9	23·7	23·5	23·3	22·4	20·9	19·0	16·7	14·0	11·3	9·0	6·8	4·7	2·7	1·4	1·0	41
23·5	23·3	23·1	22·9	22·1	20·7	18·9	16·7	14·1	11·4	9·1	7·0	4·8	2·8	1·4	1·0	42
22·9	22·7	22·5	22·4	21·7	20·2	18·5	16·4	13·9	11·3	9·1	6·9	4·8	2·8	1·4	1·0	43
22·2	22·1	21·9	21·8	21·1	19·6	17·7	15·7	13·3	10·9	8·8	6·7	4·7	2·8	1·5	1·1	44
21·5	21·4	21·3	21·2	20·5	18·9	17·0	15·0	12·8	10·5	8·5	6·5	4·6	2·8	1·6	1·1	45
20·8	20·8	20·7	20·6	19·8	18·2	16·2	14·2	12·1	10·0	8·1	6·3	4·5	2·7	1·6	1·2	46
20·2	20·1	20·0	19·9	19·2	17·5	15·5	13·5	11·5	9·5	7·7	6·1	4·4	2·7	1·7	1·2	47
19·6	19·5	19·4	19·4	18·7	17·0	15·1	13·1	11·2	9·3	7·5	5·9	4·2	2·6	1·6	1·1	48
19·3	19·2	19·0	18·9	18·2	16·6	14·8	12·9	11·1	9·2	7·4	5·8	4·1	2·5	1·4	1·0	49
19·1	18·9	18·7	18·6	17·9	16·3	14·6	12·8	10·9	9·1	7·3	5·7	4·0	2·4	1·3	0·9	50
18·9	18·6	18·5	18·3	17·5	16·0	14·4	12·7	10·9	9·1	7·3	5·6	3·9	2·3	1·2	0·9	51
18·7	18·4	18·2	18·0	17·2	15·8	14·2	12·5	10·8	9·0	7·2	5·5	3·8	2·2	1·1	0·8	52
18·6	18·4	18·1	17·9	17·1	15·6	14·0	12·3	10·6	8·8	7·1	5·4	3·7	2·2	1·1	0·8	53
18·6	18·3	18·1	17·8	17·0	15·5	13·8	12·0	10·2	8·5	6·8	5·2	3·6	2·2	1·1	0·8	54
18·5	18·2	18·0	17·7	16·8	15·2	13·5	11·7	9·9	8·1	6·5	5·0	3·4	2·0	1·1	0·8	55
18·5	18·2	18·0	17·7	16·8	15·1	13·4	11·5	9·5	7·8	6·2	4·8	3·3	2·0	1·1	0·8	56
18·5	18·2	17·9	17·6	16·7	15·0	13·1	11·2	9·2	7·5	6·0	4·6	3·2	1·9	1·1	0·8	57
...	...	...	...	16·3	14·6	12·7	10·8	8·8	7·1	5·6	4·3	3·1	1·8	1·1	0·7	58
...	...	...	...	15·8	14·0	12·2	10·3	8·3	6·7	5·3	4·1	2·9	1·8	1·0	0·7	59
...	...	...	...	15·3	13·5	11·7	9·8	7·8	6·3	5·0	3·9	2·8	1·7	1·0	0·6	60
...	...	...	...	14·8	12·9	11·2	9·3	7·4	5·9	4·7	3·7	2·6	1·6	0·9	0·6	61
...	...	...	...	14·1	12·3	10·6	8·8	7·0	5·6	4·4	3·5	2·5	1·5	0·9	0·6	62
...	...	...	...	...	...	...	...	...	5·2	4·2	3·3	2·3	1·5	0·9	0·6	63
...	...	...	...	..	...	..	...	...	4·9	4·0	3·1	2·2	1·3	0·8	0·5	64
...	...	...	...	...	...	...	...	...	4·6	3·8	3·0	2·1	1·3	0·8	0·5	65

Ante-nuptial Conception and Illegitimacy.

The following statistics may not appear creditable to the colony of New South Wales, but it is to be feared that if like information were available for other countries they would make no better display; for comparing the illegitimacy rate of New South Wales with the rates of the United Kingdom and other countries the following results are obtained :—

Percentage of Illegitimate to total Births.

England and Wales...	4·24	France	8·65
Ireland	2·63	Prussia.....	7·66
Scotland.....	7·29	Austria.....	14·66
New South Wales ...	6·45	Sweden.....	10·35

The method of registration in force does not admit of information being obtained in regard to previous issue of women who have had illegitimate children; so that, for the purpose of the following comparisons, illegitimate births are assumed to be first births; but though, as will presently be shown, there are undoubted reasons for saying that this is not true in many cases, especially at the later ages, the assumption that it is true does not greatly affect the results arrived at.

Counting, then, the illegitimate as first births, there were during the six years, 1893–98 :—

	Number.	Per cent.
First births, post-nuptial conception	28,018	49·89
,, ante-nuptial ,, ...	13,366	23·80
,, illegitimate ,, ...	14,779	26·31
	56,163	100·00

Dividing the figures into age groups, they become singularly interesting :—

Table XVI.

Age Group.	Illegitimate Births.		Legitimate Births.			
			Within 9 months of Marriage.		9 Months and Upwards.	
	Number.	Per cent. of First Births at each age.	Number.	Per cent. of First Births at each age.	Number.	Per cent. of First Births at each age.
Under 20 years	4,097	40·62	3,421	33·92	2,567	25·46
20 and under 25 years ...	5,752	22·69	6,902	27·23	12,695	50·08
25 ,, 30 ,, ...	2,558	19·08	2,198	16·40	8,649	64·52
30 ,, 35 ,, ...	1,289	26·73	587	12·17	2,947	61·10
35 ,, 40 ,, ..	807	41·19	208	10·62	944	48·19
40 and over	276	50·92	50	39·85	216	9·23
Totals and averages—all ages.	14,779	26·31	13,366	23·80	28,018	49·89

For all ages the number of illegitimate births forms 26·31 per cent. of the first births; the number of children born within nine months of marriage equals 23·80 per cent.; while the number of children born nine months and upwards from date of marriage equals 49·89 per cent., or a little less than one-half of the total.

Where parties are unmarried, and intercourse resulting in conception takes place between them, it may be presumed that in the case of one or other of the parties there is a desire that the illicit connection should end in marriage; but from the nature of the case it might be anticipated that the proportion of marriages which follows illicit intercourse would be very irregular. The statistics, however, disclose a surprising regularity, the proportion of marriages taking place after conception has been discovered being as follows :—

Year.	Illegitimate Births.	Births within 9 Months of Marriage.	Total Births.	Percentage of Marriages following Conception to Total Births.
1893	2,486	1,981	4,467	44·3
1894	2,424	2,048	4,472	45·8
1895	2,507	2,226	4,733	47·0
1896	2,432	2,287	4,719	48·5
1897	2,433	2,416	4,849	49·8
1898	2,497	2,408	4,905	49·1

The proportion of marriages following conception shows an increase; but this increase has been gradual, and is such as might reasonably be expected from the improved industrial condition which the last three years have witnessed. Equally striking are the results of an analysis of the figures showing the periods by which marriages preceded the births of first children.

Table XVII.—Marriages following Ante-nuptial Conception.

Period which Marriage preceded Birth of Child.	1893.	1894.	1895.	1896.	1897.	1898.	Total 1893-8.
1 month and under	190	171	249	220	251	253	1,334
2 months	190	181	195	219	210	209	1,204
3 ,, ...	226	272	255	253	270	301	1,577
4 ,, ...	251	253	265	296	292	300	1,657
5 ,, ...	257	286	308	315	344	330	1,840
6 ,, ...	306	284	316	316	360	360	1,942
7 ,, ...	280	319	318	346	334	352	1,949
8 ,, ...	281	282	320	322	355	303	1,863
Total	1,981	2,048	2,226	2,287	2,416	2,408	13,366

It may not be out of place here to point out that the number of seven-month children, alluded to on page 26, must be very small indeed. There were 1,942 children in the six years whose birth occurred at six months, 1,949 at seven months, and 1,863 at eight months after the marriage of their parents. There are plausible grounds for supposing that the births of children of ante-nuptial conception should be more numerous at six months than at either seven or eight months after marriage, but the same grounds which favour that conclusion would also favour the supposition that the seven-month births should be more numerous than those of eight months. Assuming then that the number of seven-month children is a mean between those of six and eight months, the number of such would be 1,903 instead of 1,949 shown in the Table, so that 46 are the most that can be allowed for seven-month children of *post* nuptial conception out of 41,384 first children born during the six years, a figure which does not represent more than one such birth in every 900. There are, however, no proper data to support any definite conclusion on this interesting point.

The prospect of a woman being married between conception and the birth of her child is 47·5 per cent., a little more or a little less according to the conditions of employment; but the longer marriage is delayed after conception is found to have taken place the less likelihood is there of its being entered into. The slight increase in the ratio of marriages during the last month preceding childbirth is evidence of the almost despairing pressure brought to bear upon the father before it becomes too late to save the legitimacy of the offspring.

The prospect of a woman with child obtaining marriage before the birth of the child depends very much upon her age, as the following figures, deduced from Table XVI, clearly show:—

Table XVIII.

Age Group. (1.)	Legitimate Births within 9 months after Marriage and Illegitimate Births. (2.)	Legitimate Births within 9 months of Marriage. 3.)	Proportion of Legitimate Births within 9 months after Marriage, to total Births (Column 2). (4.)
			per cent.
15 and under 20 years	7,449	3,415	45·8
20 ,, 25 ,, ...	12,654	6,902	54·5
25 ,, 30 ,, ...	4,756	2,198	46·2
30 ,, 35 ,, ...	1,876	587	31·3
35 ,, 40 ,, ...	1,015	208	20·4
40 ,, 45 ,, ...	289	47	16·4

The chance of a young woman of 20 to 25 years obtaining marriage is 54·5 per cent., but the percentage drops to 16·4 when the woman's age exceeds 40 years.

Comparing the illegitimate births with the number of single women in New South Wales between the ages of 15 and 45, the birth rate is found to be 18·05 per cent. At this figure the rate has been almost

stationary for some ten years ; but there has been a perceptible increase since 1861. The following figures show how the rates stood for the years indicated :—

Year.	Number of Single Women 15 and under 45 years.	Illegitimate Births.	Percentage.
1861	29,959	455	15·19
1871	46,901	777	16·57
1881	72,375	1,254	17·33
1891	116,801	2,099	17·97
1898	138,310	2,497	18·05

Sex.

Of 10,000 children born in New South Wales, 5,134 will be males and 4,866 females, being an excess of males of 268, or 5·05 per cent. In no year, so far as observation extends, have the female births exceeded those of the males. The excess of male births varies from year to year, the smallest excess being 2·08 per cent. in 1875, and the greatest 7·65 in 1889. If the illegitimate births had been excluded, the excess of males over females would have shown a wider range, viz., from 1·71 per cent. in 1876 to 8·06 per cent. in 1889. It is a peculiar coincidence that the proportion of males born out of wedlock was abnormally high in 1876, and abnormally low in 1889, while the reverse was the case in regard to legitimate births. There has been, on the whole, a greater range in the proportion of each sex born out of wedlock than is found among the legitimate births ; indeed, in some years, the illegitimate births show a majority of female children. For the last 26 years, the proportion of male to female illegitimate births has ranged between 94·96 per cent. in 1873 to 121·96 per cent in 1876. Taking the whole of the illegitimate births of those years together, the proportion was 103·41 per cent.—which does not differ materially from the general average for all births, viz., 105·85.

The influence of the age of parents upon the sex of the offspring is a matter that has been much discussed. In order to ascertain if there were any law to which the occurrence of sex could be referred, the proportions of each sex in every 100 births to parents of every age were tabulated (See Appendix F), and it was ascertained that the proportion of male births exceeded that of the females at every age, with the following general exceptions :—

Where the father's age was 22 years and under, and the mother's age 20 years.
" " 21 " " " 21 "
" " 20 " " " 22 "
Where the father was 10 years younger than the mother.
Where the father was 20 years older than the mother, and the mother's age was over 22 years and under 33.
Where the mother was approaching the limit of the child-bearing period, irrespective of age of father.

The number of children born to married couples under the conditions mentioned in the foregoing list of exceptions to the general law is not large, probably not reaching more than 2 per cent. of the total births.

The proportion of males in every 100 legitimate births is, on an average, 51·42 ; the highest percentage in any age group being 55·5 for mothers aged 20 with fathers of 42 years—that is to say, for the youngest mothers shown in the table and the oldest age group of fathers married to women of that particular age ; while the lowest proportion of males is found to be 38·7 for mothers aged 45 years (the oldest female age tabulated) with fathers aged 33 years (the youngest ages for males tabulated in connection with mothers of 45 years).

The proportions of male births to women of the specified ages are as given in the accompanying statement, the same particulars for all ages being as detailed in the Appendix. It should be borne in mind, in considering the figures, that by far the greatest number of births occur amongst mothers below 35 and over 20 years.

Table XIX.—Proportion of Male Children out of 100 Births to Parents aged as under.

Father's Age.	Mother's Age.				Father's Age.	Mother's Age.			
	20 Years.	25 Years.	35 Years.	45 Years.		20 Years.	25 Years.	35 Years.	45 Years.
23	50·0	51·3	.....	.....	42	55·5	51·8	51·9	46·4
24	50·5	51·6	.....	.....	43	.....	51·6	52·0	47·0
25	51·0	51·7	.....	.....	44	.....	51·3	52·0	47·6
26	51·4	51·9	.....	.....	45	.....	50·8	52·1	48·9
27	51·8	52·1	50·4	.....	46	.....	50·3	52·1	48·5
28	52·0	52·0	50·6	.....	47	.....	49·7	52·1	49·0
29	52·3	52·1	50·6	.....	48	.....	49·4	52·2	49·5
30	52·6	52·1	50·9	.....	49	.....	48·3	52·2	50·0
31	53·0	52·1	51·0	.....	50	.....	47·3	52·2	50·2
32	53·2	52·1	51·0	.....	51	.....	46·2	52·1	50·5
33	53·4	52·1	51·2	38·7	52	.....	45·0	52·3	50·8
34	53·7	52·2	51·3	39·5	53	.....	.....	52·0	50·9
35	54·0	52·2	51·4	40·5	54	.....	.....	.....	50·9
36	54·4	52·2	51·5	41·7	55	.....	.....	.....	50·8
37	54·6	52·2	51·5	42·6	56	.....	.....	.....	50·6
38	54·8	52·1	51·6	43·5	57	.....	.....	.....	50·2
39	55·0	52·1	51·7	44·3	58	.....	.....	.....	49·6
40	55·2	52·1	51·8	45·0	59	.....	.....	.....	49·0
41	55·3	51·9	51·8	45·9	60	.....	.....	.....	48·0

To complete the information regarding the influence of age of parents on the sex of offspring the following table has been prepared :—

Table XX.—Proportion of Male Children out of 100 Births to Fathers aged as under.

Mother's Age.	Father's Age.				Mother's Age.	Father's Age.			
	25 Years.	35 Years.	45 Years.	65 Years.		25 Years.	35 Years.	45 Years.	65 Years.
20	51·0	54·0	.....	.....	33	50·9	51·7	51·9	.....
21	51·2	53·4	.....	.....	34	.....	51·6	52·0	.....
22	51·3	52·8	.....	.....	35	.....	51·4	52·1	.....
23	51·5	52·2	50·4	.....	36	.....	51·3	52·2	.....
24	51·6	52·2	50·6	.....	37	.....	51·1	52·3	.....
25	51·7	52·2	50·8	.....	38	.....	50·9	52·5	54·1
26	51·8	52·2	51·0	.....	39	.....	51·1	52·2	52·0
27	51·9	52·2	51·3	.....	40	.....	51·4	51·9	49·9
28	51·7	52·2	51·5	.....	41	.....	51·7	51·6	47·8
29	51·6	52·1	51·5	.....	42	.....	52·0	51·3	47·7
30	51·4	52·0	51·6	.....	43	.....	48·2	50·2	43·6
31	51·3	51·9	51·7	.....	44	.....	44·4	49·1	41·5
32	51·1	51·8	51·8	.....	45	.....	40·5	48·0	39·5

The curves deduced from the foregoing tables, with the additional experience of mothers below 20 years and over 45 years, taken from Appendix F, are shown on Diagrams F and G.

Plurality at a Birth.

During the six years which closed with 1898 there were registered 2,210 cases of legitimate twins, triplets, and quadruplets, representing 1·048 per cent. of all legitimate births, and 100 cases of illegitimate plural births. The numbers are small, and under general circumstances it would be unscientific to attempt to deduce any general law therefrom ; but the results are so well defined as to point clearly to the fact that the age of the parents is the chief determining factor in plural births. Whatever part heredity may play in marking out those who are liable to give birth to twins or triplets, it is clear that there is a certain period of age, both in males and in females, at which there is a greater tendency to produce twins than at other periods. For females this period is somewhere between the 35th and 40th years, and for males it appears to be even later. The smallest proportion of plural births is found amongst women of the youngest ages, the average for the six years being, for ages under 20, one case of twins to 224 confinements, mounting steadily to a maximum of one to 67 confinements between the ages of 35 and 40. With fathers the smallest proportion

is also at ages under 20, the average being one case of twins to every 170 confinements, increasing to a maximum of one to 59 confinements at ages 55 to 60 years.

Comparing the births of twins with the actual number of husbands and wives, the average for all ages is 231 per 100,000 couples, being greatest for husbands at age 37, when the average is 322 per 100,000 husbands, and also for wives at the same age, when the birth-rate averages 334 per 100,000 wives.

The number of cases of triplets is very small, being on an average not more than 90 per 1,000,000 confinements; but it is surprising how closely their occurrence is affected by the age of the parents. If the triplet births be separated from the other plural births it is found that their maximum occurrence is where the father's age is from 50 to 55 years and the mother's age from 35 to 40 years. The following table shows the probable plurality at a birth for various age periods:—

Table XXI.—Proportion of Plural Births to Total Births to parents of various ages.

Age Groups.	Total Number of Births to Fathers of each age.	Number of Twins to Fathers of each age.	Annual Proportion of Twins per 100,000 Births at each age.	Total Number of Births to Mothers of each age.	Number of Twins to Mothers of each age.	Annual Proportion of Twins per 100,000 Births at each age.
17 and under 20 ...	340	2	588	7,181	32	446
20 ,, 25 ...	16,143	101	626	45,282	272	601
25 ,, 30 ...	46,893	345	736	60,093	560	932
30 ,, 35 ...	54,754	574	1,048	49,546	643	1,298
35 ,, 40 ...	45,678	589	1,290	34,380	512	1,489
40 ,, 45 ...	26,377	303	1,149	12,790	159	1,243
45 ,, 50 ...	13,006	158	1,215	1,347	10	742
50 ,, 55 ...	5,249	77	1,467	.....	.....	.....
55 ,, 60 ...	1,766	30	1,699	.....	.....	.....
60 ,, 65 ...	527	7	1,328	.....	.....	.....

It is a remarkable fact that of 2,210 plural legitimate births, 1,342 or 60 per cent., occurred to mothers whose ages were 30 years and upwards; whereas, of all legitimate births, only 47·5 per cent. occurred amongst women of these ages; and, although 55 per cent. of legitimate births occur amongst mothers of 28 years and upwards, the proportion of plural births at these ages is 72 per cent. Out of 19 triplet births, 14 occurred to women over 30 years of age. The mothers' ages in the only three cases of quadruplets registered during the six years were respectively 21, 33, and 36. The same preponderance of plural births amongst women who have passed 28 years of age also applies to illegitimate births, for of the 100 such births, 47 were to women over 28, and 37 to women over 30 years of age, the proportions for those ages amongst all illegitimate births being respectively 21·5 per cent. and 16 per cent.

Deaths in Childbirth.

The statistics of all countries are singularly deficient in particulars concerning deaths of child-bearing women, and the information herein given covers a far larger number of cases than any statistics hitherto published.

The data on which the investigations are founded are the ages, previous issue, and other details in regard to 210,935 married women who were confined in the years 1893–98, and 14,735 unmarried women who were confined during the same period. During the six years there were 1,432 deaths of married women, and 160 deaths of unmarried women, in childbirth; and the following table gives a distribution of the confinements according to the previous issue of married mothers. This interesting grouping cannot be extended to unmarried women as the registrations do not afford particulars of their previous issue.

Table XXII.

Number of Confinement.	Births.	Deaths in Childbirth.	Number of Confinement.	Births.	Deaths in Childbirth.
1	41,385	365	13	1,071	15
2	34,089	150	14	545	3
3	29,334	150	15	274	3
4	24,675	130	16	125	1
5	20,621	136	17	58	.....
6	16,788	104	18	20	1
7	13,479	99	19	11	.....
8	10,328	90	20	3	.....
9	7,510	79	21	.....	.....
10	5,213	47	22	.....	.....
11	3,420	31	23	3	.....
12	1,983	28	Total ...	210,935	1,432

It will be seen that there were only 1,039 confinements of women with a previous issue of thirteen or more; and as the figures have no value for comparative purposes, they are therefore omitted from the following statement showing the probability of death at each confinement. The values quoted are adjusted. The unadjusted values (actual experience) of the probabilities of death during confinement will be found in Appendix H.

Table XXIII.

Number of Confinement.	Probability of Death during Confinement.	Number of Confinement.	Probability of Death during Confinement.
1	·00880	8	·00872
2	·00470	9	·00992
3	·00509	10	·01040
4	·00554	11	·01100
5	·00610	12	·01246
6	·00682	13	·01450
7	·00754		

The risk attending the first birth is greater than at any subsequent one up to but not including the ninth; the minimum risk, ·00470, would appear to be at the second confinement, although the risk at the third, ·00509, is not much greater. From the third confinement the risk increases rapidly; but the question has not been sufficiently investigated to show how much of the increased risk is due to loss of vitality or other causes arising out of previous confinements, and how much to the increased age of the mother. The importance of age as an element of risk at child birth will be further discussed later on.

The great bulk of first confinements occur amongst women whose ages range from 19 to 25 years; they are also fairly numerous from 17 to 33 years. Outside these ages the number of cases is not sufficiently large to warrant any certain deductions being drawn from them. The following are the number of confinements and deaths at each age :—

Table XXIV.

Age of Mothers.	Number of First Confinements (Primiparae).	Number of Deaths in Childbirth.	Age of Mothers.	Number of First Confinements (Primiparae).	Number of Deaths in Childbirth.
15	47	...	32	671	12
16	235	...	33	521	13
17	894	9	34	402	7
18	1,885	15	35	338	6
19	2,419	25	36	300	2
20	3,271	17	37	196	3
21	4,227	28	38	172	3
22	4,439	32	39	146	1
23	4,137	34	40	103	1
24	3,522	28	41	42	1
25	3,049	26	42	57	...
26	2,640	19	43	27	2
27	2,081	15	44	16	1
28	1,799	22	45	13	...
29	1,278	19			
30	1,172	17	Total ...	41,367	363
31	768	5			

Taking all first confinements, the number of fatal cases represents one death to 114 confinements, so that the average risk is ·0088. The risk at each age is set forth in the following table; the figures have been adjusted to allow for the improper statement of ages, which is the chief source of error in all vital statistics, and are those from which curve (*a*), Diagram H, is plotted.

Table XXV.

Age of Mother.	Probability of Death at First Confinement.	Age of Mother.	Probability of Death at First confinement.
17	·01000	30	·01238
18	·00804	31	·01312
19	·00712	32	·01390
20	·00672	33	·01470
21	·00662	34	·01540
22	·00689	35	·01612
23	·00782	36	·01688
24	·00858	37	·01765
25	·00918	38	·01840
26	·00974	39	·01920
27	·01032	40	·02000
28	·01098	41	·02060
29	·01166		

The risk attendant upon the birth of a first child is at a minimum at age 21 years, increasing very rapidly after this age is passed. The risk also increases as the age falls below 21, but at 17 it is not greater than at 26.

The number of confinements of women who have already borne children (multiparae) and the deaths are given in the next Table, the total confinements recorded being 169,541 and the deaths 1,067. The fatal cases represent one death to 160 confinements, being a risk of ·0063, as compared with ·0088 amongst primiparae. This comparison, however, is of no great value as the confinements of multiparae are numerous at ages over 30, at which ages first confinements are rare and the probability of death very much greater than at the lower ages.

Table XXVI.

Age of Mother.	Number of Confinements (Multiparae).	Number of Deaths in Childbirth.	Age of Mother.	Number of Confinements (Multiparae).	Number of Deaths in Childbirth.
16	12	...	26	9,810	37
17	79	...	27	9,997	47
18	350	1	28	10,584	66
19	1,054	4	29	10,016	43
20	2,090	4	30 and under 35	46,008	313
21	3,496	9	35 ,, 40	33,226	294
22	5,112	17	40 ,, 45	12,545	143
23	6,901	19	45 and over	1,343	17
24	8,085	29			
25	8,833	24	Total	169,541	1,067

The age of minimum risk for multiparae is 21 years—that is to say, the same year as for primiparae. The values shown in the following table represent the risk at each age ; they are adjusted and have been used to plot curve (*b*), Diagram H :—

Table XXVII.

Age of Mother.	Probability of Death during Confinement.	Age of Mother.	Probability of Death during Confinement.
18	·00380	30	·00577
19	·00315	31	·00616
20	·00290	32	·00658
21	·00285	33	·00700
22	·00297	34	·00742
23	·00318	35	·00780
24	·00348	36	·00822
25	·00382	37	.00862
26	·00414	38	·00904
27	·00453	39	·00945
28	·00494	40	·00986
29	·00535	41	·01025

It will be observed that the risk rises with age, but much more slowly than with the primiparae, and the superiority of the multiparae is visible at every age.

Age of Mother.	Probability of Death.	
	Primiparae.	Multiparae.
18	·00804	·00380
20	·00672	·00290
25	·00918	·00382
30	·01166	·00577
35	·01612	·00780
40	·02000	·00986

A statement of the probability of death to all married women (primiparae and multiparae combined) is not of great interest where it is possible, as in New South Wales, to show the two classes separately, but it is inserted here for purposes of comparison with the statistics of countries where the distinction is not made. The values quoted below are those from which curve (*c*), Diagram H, has been drawn. The number of cases will be found in Appendix J.

Table XXVIII.

Age of Mother.	Probability of Death during Confinement.	Age of Mother.	Probability of Death during Confinement.
17	·00900	32	·00710
18	·00690	33	·00745
19	·00559	34	·00780
20	·00477	35	·00816
21	·00454	36	·00850
22	·00454	37	·00888
23	·00461	38	·00922
24	·00473	39	·00957
25	·00494	40	·00992
26	·00518	41	·01028
27	·00547	42	·01064
28	·00577	43	·01098
29	·00606	44	·01135
30	·00640	45	·01170
31	·00673		

There is a difficulty in dealing with the deaths of unmarried women, as the previous issue of such women is not ascertained. It is probable that the great bulk of these women, up to age 23, figuring in the tables, are primiparae, beyond that age it is equally probable that there are

numerous multiparae amongst them. At age 25 the risk of death is greater for the married primiparae than for unmarried women, and as this is unlikely to happen if the unmarried women are all primiparae, it is evident that a large number of unmarried mothers have previously borne children. The ages of mothers of illegitimate children, as well as the number of deaths, were as given below. The total number of confinements was 14,779, but in 44 cases the mother's age was not stated.

Table XXIX.

Age of Mother.	Number of Confinements.	Number of Deaths in Childbirth.	Age of Mother.	Number of Confinements.	Number of Deaths in Childbirth.
13	7	1	25	663	6
14	55	1	26	587	4
15	155	5	27	492	6
16	421	6	28	458	2
17	842	12	29	358	5
18	1,202	11	30 and under 35	1,284	14
19	1,401	13	35 ,, 40	803	2
20	1,404	16	40 ,, 45	242	2
21	1,336	17	45 and over ...	34	.....
22	1,190	15			
23	1,006	13	Total ...	14,735	160
24	795	9			

The risk of death in childbirth in quinquennial periods was—

Under 15	·03226
15 and under 20	·01169
20 ,, 25	·01221
25 ,, 30	·00899
30 ,, 35	·01090
35 and over	·00367

There is a peculiar circumstance connected with the confinements of unmarried women, which is, that for ages above thirty years the proportion of women who died was less than amongst married women. The number of unmarried mothers of above 30 years of age was 2,363, and the deaths in confinement 18—the probability of death was, therefore, ·00762 compared with ·00824 of married multiparae and ·01497 of primiparae. The number of women confined was too small amongst unmarried and amongst primiparae to allow of any safe deductions being drawn from the foregoing figures. All that can be said with certainty in regard to the confinement of unmarried and married is that the risk of an unmarried woman dying in childbirth is, for women

who have not had previous issue, very much greater than for married women, the disproportion in the ratios being greatest at the lower ages. For women who have already borne children, the risk of the unmarried up to age 35 is the greater; beyond that age the data are altogether insufficient to admit of a fair average being obtained; but, as far as the statistics go, the risk is less for the unmarried.

Prior to the publication of the information now got together, the best statistics on the subject of childbirth were those contained in Dr. Matthews Duncan's well-known work on Fecundity, Fertility, and Sterility. Writing in 1871, Dr. Duncan declared that "not fewer than 1 in every 120 women, delivered at or near the full time, die within four weeks of childbed." In New South Wales there is happily a better, though still a high, average; for there were 1,592 deaths from 225,714 confinements of married and unmarried women, or 1 death to 142 confinements. As Dr. Duncan has made the distinction between primiparæ and multiparæ, a comparison of his results for various ages with those of New South Wales are interesting; this the following table affords:—

Table XXX.—Risk in Childbirth.

Age Groups.	Primiparae.		Multiparae.	
	New South Wales.	Dr. Matthews Duncan.	New South Wales.	Dr. Matthews Duncan.
15 and under 20.....	·00819	·01208	·00334	.....
20 ,, 25.....	·00709	·01291	·00304	·00711
25 ,, 30.....	·00931	·01291	·00441	·00521
30 ,, 35.....	·01528	·02260	·00680	·01115
35 ,, 40.....	·01302	·00746	·00885	·00879
40 ,, 45.....	·02041	.....	·01140	·00991
45 ,, 50.....	.....	.....	·01266	·02174

In a paper read at the 66th annual meeting of the British Medical Association, held in Edinburgh, Dr. J. Playfair and Mr. T. Wallace gave statistics of the deaths in the Royal Maternity and Simpson Memorial Hospital, Edinburgh. For married primiparæ they found the death-rate to be ·02053, or one death to 49 confinements; and for married multiparæ the death-rate was ·0056, or one death to 179 confinements, in both cases very much higher than the rates ascertained for New South Wales; but the experience afforded by the hospital is too small to warrant definite conclusions being drawn from it.

It would be interesting to compare the rate of deaths as now ascertained with those of past years; but this is unfortunately impossible. It is true that the causes of death have been officially registered for over forty years, but there has been great negligence in the way the certificates of death have been filled in, and it would seem that it has been very largely the practice to withhold the true cause where death has been due to confinement. Even the New South Wales Statistics, upon which the most patient care is bestowed, are found to be unreliable, so far as deaths from childbirth are concerned, for years prior to 1893, as various ill-defined descriptions of the cause of death have been returned by medical attendants, and where a defined cause has been given, the important qualification *puerperal* has been omitted in a very large number of cases, especially of septicæmia and peritonitis, where death occurred in childbirth. This reluctance to acknowledge the true cause of death is not confined to New South Wales, and statements for any country indicating a more favourable general death-rate than one in one hundred and seventy should be received with caution.

From the reports of the vital statistics of the colonies mentioned, the following figures have been computed. It will be seen that the death-rates range from ·00447 (1 in 224) to ·00705 (1 in 142); but in no case can the figures be absolutely relied upon, except for New South Wales, and then only since 1893. A great deal of attention has, however, been bestowed upon the Victorian figures, and they cannot be very far from the truth.

Table XXXI.—Deaths in Childbirth, Australasian Colonies.

Colony.	Mean of 20 years, 1873-92.	Mean of 5 years, 1893-97.
New South Wales	·00463 (1 in 216)	·00705 (1 in 142)
Victoria.....	·00627 (1 in 159)	·00567 (1 in 176)
Queensland	·00551 (1 in 181)	·00447 (1 in 224)
South Australia	·00473 (1 in 211)	·00542 (1 in 184)
New Zealand	·00531 (1 in 188)	·00498 (1 in 201)

The following were the assigned causes of death in the 1,592 fatal cases of childbirth occurring in the six years under review. It is possible, however, that the total is short of the true number, as it is believed that some 30 cases of death from puerperal fever in 1893 were returned by the persons whose certificates of death were accepted as due to other causes.

Table XXXII.—Causes of Death in Childbirth.

Cause of Death.	1893.	1894.	1895.	1896.	1897.	1898.	Total, 1893-98.
Abortion	5	12	11	11	26	16	81
Miscarriage	19	21	26	27	32	20	145
Puerperal fever	67	110	111	81	113	92	574
Puerperal mania	3	4	1	5	3	1	17
Puerperal convulsions	22	28	23	27	32	31	163
Placenta prævia—Flooding	36	30	40	36	39	37	218
Phlegmasia dolens	3	1	2	1	4	...	11
Other casualties of childbirth	66	61	64	61	72	59	383
Total	221	267	278	249	321	256	1,592

From every point of view the details of causes of death stated above are unsatisfactory, as one-fourth of all deaths are grouped together under the heading of other casualties of childbirth. This faulty definition is due to want of thought on the part of medical attendants in furnishing the certificates required by law, the cause of death certified to by them being simply childbirth, which in most cases means one or other of the specific causes enumerated in the table; but even of this there can be no certainty, and in this connection it may not be out of place to remark that many of the difficulties of the statistician in dealing with vital statistics arise from the careless manner in which medical men render their death certificates.

Appendix A

Respective Ages of Fathers and Mothers of Children, including Single Births, Twins, and Triplets, born during the five years 1893–97.

Ages of Fathers.	Births (Single, Twins, &c.).	AGES OF MOTHERS. 14	15	16	17	18	19	20	21 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and over.	Total Fathers.
17	Single ..	..	1	1	1	1	..	..	2	....	....	....	....	....	....	6
	Plural ..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....
	Total..	..	1	1	1	1	..	..	2	....	....	....	....	....	....	6
18	Single ..	1	..	6	11	17	7	5	13	1	....	....	....	....	....	61
	Plural ..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....
	Total..	1	..	6	11	17	7	5	13	1	....	....	....	....	....	61
19	Single ..	..	2	10	30	49	48	30	36	2	1	1	....	....	....	209
	Plural ..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....
	Total..	..	2	10	30	49	48	30	36	2	1	1	....	....	....	209
20	Single ..	..	3	13	37	92	123	94	133	20	1	1	....	....	....	517
	Plural ..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....
	Total..	..	3	13	37	92	123	94	133	20	1	1	....	....	....	517
21 and under 25	Single ..	1	14	77	362	808	1,313	1,573	6,892	1,663	145	22	4	1	....	12,875
	Plural ..	..	..	..	2	3	5	6	48	18	3	1	....	....	....	86
	Total..	1	14	77	364	811	1,318	1,579	6,940	1,681	148	23	4	1	....	12,961
25 and under 30	Single ..	1	13	61	240	620	1,267	1,896	15,444	16,718	2,740	358	30	1	....	39,389
	Plural ..	..	..	..	4	1	5	12	90	139	29	10	1	....	....	291
	Total..	1	13	61	244	621	1,272	1,908	15,534	16,857	2,769	368	31	1	....	39,680
30 and under 35	Single ..	..	1	17	73	173	389	677	7,639	19,433	15,295	2,267	172	4	....	46,140
	Plural ..	..	..	..	..	2	5	4	53	182	201	36	2	....	....	485
	Total..	..	1	17	73	175	394	681	7,692	19,615	15,496	2,303	174	4	....	46,625

35 and under 40	Single ..	1	..	3	22	55	124	183	2,456	9,006	14,244	10,707	981	24	....	37,806
	Plural ..	..	..	..	..	..	..	2	13	103	203	179	9	1	....	510
	Total..	1	..	3	22	55	124	185	2,469	9,109	14,447	10,886	990	25	....	38,316
40 and under 45	Single ..	..	..	4	5	11	30	44	602	2,320	5,991	8,653	3,833	105	....	21,598
	Plural ..	.	..	..	..	..	..	..	2	21	63	116	51	....	....	253
	Total..	..	..	4	5	11	30	44	604	2,341	6,054	8,769	3,884	105	....	21,851
45 and under 50	Single ..	..	..	1	1	3	6	15	174	746	1,966	4,152	3,192	461	1	10,718
	Plural ..	..	..	..	..	..	..	..	....	6	27	58	37	4	....	132
	Total..	..	..	1	1	3	6	15	174	752	1,993	4,210	3,229	465	1	10,850
50 and under 55	Single ..	..	..	..	..	..	5	3	68	266	708	1,400	1,591	328	1	4,370
	Plural ..	..	..	..	..	..	..	..	....	3	15	25	19	3	....	65
	Total..	..	..	..	..	..	5	3	68	269	723	1,425	1,610	331	1	4,435
55 and under 60	Single ..	..	..	1	..	..	1	..	25	109	236	463	449	152	8	1,444
	Plural ..	..	..	..	..	..	..	..	1	1	2	9	11	1	....	25
	Total..	..	..	1	..	..	1	..	26	110	238	472	460	153	8	1,469
60 and under 65	Single ..	..	..	..	..	..	1	..	6	31	91	130	135	31	4	429
	Plural ..	..	..	..	..	..	..	..	....	....	1	3	1	....	....	5
	Total..	..	..	..	..	..	1	..	6	31	92	133	136	31	4	434
65 and under 70	Single ..	..	..	..	..	..	1	..	2	12	28	35	25	17	....	120
	Plural ..	..	..	..	.	..	..	..	....	....	....	1	....	....	....	1
	Total..	..	..	..	..	..	1	..	2	12	28	36	25	17	....	121
70 and under 75	Single ..	..	..	..	..	..	..	1	2	4	6	13	7	....	....	33
	Plural ..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....
	Total..	..	..	..	..	..	..	1	2	4	6	13	7	.. .	....	33
75 and under 80	Single ..	..	..	..	..	..	..	..	1	2	4	....	1	....	....	8
	Plural ..	..	..	..	..	..	..	..	....	....	1	....	....	....	.. .	1
	Total..	..	..	..	..	..	..	..	1	2	5	....	1	....	....	9
80 and under 85	Single ..	..	..	..	..	..	..	..	....	2	1	1	1	....	....	5
	Plural ..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....
	Total..	..	..	..	..	..	..	..	....	2	1	1	1	....	....	5
Total Mothers		4	34	194	788	1,835	3,330	4,545	33,702	50,808	42,002	23,641	10,552	1,133	14	177,582

Appendix B.

Estimated Number and Relative Ages of Husbands and Wives (mean of 1895).

Ages of Husbands.	Ages of Wives.									Total Husbands.
	18.	19.	20.	21 and under 25.	25 and under 30.	30 and under 35.	35 and under 39.	40 and under 45.	45 and under 50.	
17	1	1	1	...	...	...	...	...	...	3
18	5	...	2	1	...	...	...	...	...	8
19	24	20	9	15	5	...	...	...	...	73
20	34	50	60	90	5	1	...	...	...	240
21 and under 25	404	684	930	3,806	1,034	101	21	10	1	6,991
25 ,, 30	381	703	1,082	9,425	11,895	2,139	300	58	15	25,998
30 ,, 35	106	213	394	4,633	13,763	11,689	2,066	326	65	33,255
35 ,, 40	31	57	131	1,486	6,455	11,173	8,810	1,638	356	30,137
40 ,, 45	7	15	13	383	1,827	5,080	7,587	6,349	1,214	22,475
45 ,, 50	5	3	5	132	690	2,112	4,175	6,419	5,383	18,924
50 ,, 55	2	1	10	68	265	781	1,542	3,163	4,908	10,740
55 ,, 60	...	1	2	24	84	246	519	1,192	2,602	4,670
60 ,, 65	...	1	...	10	31	71	184	459	826	1,582
65 ,, 70	..	...	...	5	20	30	59	136	271	521
70 ,, 75	...	...	...	...	7	10	20	53	95	185
75 ,, 80	...	...	...	...	2	2	7	9	10	30
80 and upwards..	...	...	...	...	...	1	3	2	11	17
Total, Wives...	1,000	1,749	2,639	20,078	36,083	33,436	25,293	19,814	15,757	155,849

N.B.—The wives between the ages of 18 and 50, only, are shown.

Appendix C.

Monogenous Natality Table. Rough figures.

Ages of Husbands.	Estimated number.	Annual Births.	Ante-nuptial conceptions.	Adjusted.		Annual Natality per 100 Husbands.
				Husbands.	Annual Births.	
20	240	92·8	24·8	215·2	68·0	31·6
21 and under 25 ...	6,991	2,501·0	441·7	6,549·3	2,059·3	31·4
25 ,, 30 ...	25,998	7,872·2	800·5	25,197·5	7,071·7	28·1
30 ,, 35 ...	33,255	9,306·8	471·6	32,783·4	8,835·2	27·0
35 ,, 40 ...	30,137	7,658·0	203·9	29,933·1	7,454·1	24·9
40 ,, 45 ...	22,475	4,368·4	65·9	22,409·1	4,302·5	19·2
45 ,, 50 ...	18,924	2,169·4	23·5	18,900·5	2,145·9	11·4
50 ,, 55 ...	10,740	886·8	8·9	10,731·1	877·9	8·2
55 ,, 60 ...	4,670	292·0	3·2	4,666·8	288·8	6·2
60 ,, 65 ...	1,582	86·0	1·0	1,581·0	85·0	5·4
65 ,, 70 ...	521	24·2	0·2	520·8	24·0	4·6
70 ,, 75 ...	185	6·6	0·1	184·9	6·5	3·5

Ages of Wives.	Estimated number.	Annual Births.	Ante-nuptial conceptions.	Adjusted.		Annual Natality per 100 Wives.
				Wives.	Annual Births.	
18	1,000	367·0	176·6	823·4	190·4	23·1
19	1,749	666·0	250·4	1,498·6	415·6	27·7
20	2,639	909·0	239·4	2,399·6	669·6	27·9
21 and under 25 ...	20,078	6,740·0	899·2	19,178·8	5,841·2	30·5
25 ,, 30 ...	36,083	10,161·6	356·4	35,726·6	9,805·2	27·5
30 ,, 35 ...	33,436	8,400·4	94·0	33,342·0	8,306·4	24·9
35 ,, 40 ...	25,293	5,728·2	34·4	25,258·6	5,693·8	22·5
40 ,, 45 ...	19,814	2,110·4	7·2	19,806·8	2·103·2	10·6
45 ,, 50 ...	15,757	226·6	0·4	15,756·6	226·2	1·4

Appendix D.

Bigenous Natality Table. Rough Figures.

Ages of Wives.	Ages of Husbands.	Estimated Number of Couples.	Annual Births.	Ante-nuptial Conceptions.	Adjusted.		Annual Natality per 100 Couples.
					Number of Couples.	Births.	
18 and under 20	20 and under 25	1,172	468·8	193·8	978·2	275·0	28·1
	25 ,, 30	1,084	378·6	156·5	927·5	222·1	24·0
	30 ,, 35	319	113·8	47·0	272·0	66·8	24·6
	35 ,, 40	88	35·8	14·8	73·2	21·0	28·7
20 and under 25	20 ,, 25	4,886	1,749·2	260·4	4,625·6	1,488·8	32·2
	25 ,, 30	10,507	3,488·4	519·2	9,987·8	2,969·2	29·7
	30 ,, 35	5,027	1,674·6	249·3	4,777·7	1,425·3	29·8
	35 ,, 40	1,617	530·8	79·0	1,538·0	451·8	29·3
	40 ,, 45	396	129·6	19·3	376·7	110·3	29·3
	45 ,, 50	137	37·8	5·6	131·4	32·2	24·5
	50 ,, 55	78	14·2	2·1	75·9	12·1	15·9
25 and under 30	20 ,, 25	1,039	340·2	12·0	1,027·0	328·2	32 0
	25 ,, 30	11,895	3,371·4	118·2	11,776·8	3,253·2	27·6
	30 ,, 35	13,763	3,923·0	137·6	13,625·4	3,785·4	27·8
	35 ,, 40	6,455	1,821·8	63·9	6,391·1	1,757·9	27·5
	40 ,, 45	1,827	468·2	16·4	1,810·6	451·8	25·0
	45 ,, 50	690	150·4	5·3	684·7	145·1	21·2
	50 ,, 55	265	53·8	1·9	263·1	51 9	19·7
	55 ,, 60	84	22·0	0·8	83·2	21·2	25·5
30 and under 35	20 ,, 25	102	29·8	0·3	101·7	29·5	29·0
	25 ,, 30	2,139	553·8	6·2	2,132·8	547·6	25·7
	30 ,, 35	11,689	3,099·2	34·7	11,654·3	3,064·5	26·3
	35 ,, 40	11,173	2,889·4	32·4	11,140·6	2,857·0	25·6
	40 ,, 45	5,080	1,210·8	13·6	5,066·4	1,197·2	23·6
	45 ,, 50	2,112	398·6	4·5	2,107·5	394·1	18·7
	50 ,, 55	781	144·6	1·6	779·4	143·0	18·3
	55 ,, 60	246	47·6	0·5	245·5	47·1	19·2
	60 ,, 65	71	18·4	0·2	70·8	18·2	25·7
35 and under 40	25 ,, 30	300	73·6	0·4	299·6	73·2	24·4
	30 ,, 35	2,066	460·6	2·8	2,063·2	457·8	22·2
	35 ,, 40	8,810	2,177·2	13·1	8,796·9	2,164·1	24·6
	40 ,, 45	7,587	1,753·8	10·5	7,576·5	1,743·3	23·0
	45 ,, 50	4,175	842·0	5·1	4,169·9	836·9	20·1
	50 ,, 55	1,542	285 0	1·7	1,540·3	283·3	18·4
	55 ,, 60	519	94·4	0·6	518·4	93·8	18·1
	60 ,, 65	184	26·6	0·2	183·8	26·4	14·4
	65 ,, 70	59	7·2	0·0	59·0	7·2	12·2
40 and under 45	25 ,, 30	58	6·2	0·0	58·0	6·2	10·7
	30 ,, 35	326	34·8	0·2	325·8	34·6	10·6
	35 ,, 40	1,638	198·0	0·7	1,637·3	197·3	12·1
	40 ,, 45	6,349	776·8	2·6	6,346·4	774·2	12·2
	45 ,, 50	6,419	645·8	2·2	6,416·8	643·6	10·0
	50 ,, 55	3,163	322·0	1·1	3,161·9	320·9	10·1
	55 ,, 60	1,192	92·0	0·3	1,191·7	91·7	7·7
	60 ,, 65	459	27·2	0·1	458·9	27·1	5·9
	65 ,, 70	136	5·0	0·0	136·0	5·0	3·7
	70 ,, 75	53	1·4	0·0	53·0	1·4	2·6
45 and under 50	30 ,, 35	65	0·8	.....	.....	.....	1·2
	35 ,, 40	356	5·0	.....	.....	.....	1·4
	40 ,, 45	1,214	21·0	.....	.....	.....	1·7
	45 ,, 50	5,383	93·0	.....	.....	.....	1·7
	50 ,, 55	4,908	66·2	.....	.....	.....	1·3
	55 ,, 60	2,602	30·6	.....	.....	.....	1·2
	60 ,, 65	826	6·2	.. ...	.. ...	.....	0·8
	65 ,, 70	271	3·4	.....	.....	.....	1·3
	70 ,, 75	95	0·0	.....	.....	.....	0·0

Appendix E.

Mean Results derived from Husbands' and Wives' Curves.

Ages of Husbands.	AGES OF WIVES.											
	18 and under 20.			20 and under 25.			25 and under 30.			30 and under 35.		
	H.C.	W.C.	Mean result	H.C.	W.C.	Mean result	H.C.	W.C.	Mean result	H.C.	W.C.	Mean result
20 and under 25	28·1	28·3	28·2	31·5	31·8	31·7	31·4	31·5	31·5	28·0	28·0	28·0
25 ,, 30	25·2	24·2	24·7	29·2	29·7	29·5	27·7	28·3	28·0	25·7	26·5	26·2
30 ,, 35	26·0	24·5	25·3	29·5	29·5	29·5	28·0	28·0	28·0	26·0	26·2	26·1
35 ,, 40	..	..	..	29·0	29·4	29·2	28·0	27·7	27·8	26·0	25·7	25·8
40 ,, 45	..	..	..	28·8	29·0	28·9	25·4	25·0	25·2	23·6	23·4	23·5
45 ,, 50	..	..	..	24·0	23·8	23·9	21·6	21·6	21·6	20·6	19·4	20·0
50 ,, 55	..	..	..	..	..	..	19·6	19·8	19·7	19·7	18·4	19·0
55 ,, 60	..	..	..	..	..	..	..	..	..	19·0	19·0	19·0
60 ,, 65	..	..	..	..	..	..	..	..	..	..	..	..
65 ,, 70	..	..	..	..	..	..	..	..	..	..	..	..

Ages of Husbands.	AGES OF WIVES.								
	35 and under 40.			40 and under 45.			45 and under 50.		
	H.C.	W.C.	Mean result.	H.C.	W.C.	Mean result.	H.C.	W.C.	Mean result.
20 and under 25	....	....	.....	....	....	....	....	....	....
25 ,, 30	22·0	23·8	22·9	....	....	....	....	....	....
30 ,, 35	22·0	24·2	23·1	10·6	11·0	10·8	....	....	....
35 ,, 40	23·6	24·4	24·0	12·1	11·9	12·0	1·5	1·5	1·5
40 ,, 45	22·4	22·8	22·6	13·1	12·3	12·7	1·7	1·7	1·7
45 ,, 50	19·0	20·1	19·6	10·0	10·5	10·2	2·0	1·8	1·9
50 ,, 55	17·0	18·5	17·8	10·0	9·8	9·9	1·2	1·6	1·4
55 ,, 60	16·8	18·0	17·4	8·0	8·0	8·0	1·2	1·4	1·3
60 ,, 65	14·4	14·7	14·6	5·8	6·0	5·9	1·0	1·0	1·0
65 ,, 70	....	....	.....	4·6	4·0	4·3	1·1	0·7	0·9

Proportion of Male Children out

FATHER'S AGE.	MOTHER'S												
	20	21	22	23	24	25	26	27	28	29	30	31	32
20	48·7	49·3	49·9	50·5	...	...	...	...	...	...	...	...	...
21	49·1	49·6	50·1	50·6	...	...	...	...	...	...	...	...	...
22	49·6	50·1	50·5	50·9	...	...	...	...	...	..	...	...	...
23	50·0	50·3	50·7	51·0	51·2	51·3	51·3	51·2	51·0	50·9	50·8	50·7	50·6
24	50·5	50·8	51·1	51·3	51·5	51·6	51·7	51·6	51·5	51·4	51·3	51·1	50·9
25	51·0	51·2	51·3	51·5	51·6	51·7	51·8	51·9	51·7	51·6	51·4	51·3	51·1
26	51·4	51·5	51·6	51·7	51·8	51·9	52·0	51·9	51·8	51·7	51·5	51·3	51·2
27	51·8	51·8	51·9	51·9	52·0	52·1	52·1	52·0	51·9	51·9	51·8	51·6	51·4
28	52·0	52·0	52·0	52·0	52·0	52·0	52·0	52·0	52·0	51·9	51·8	51·6	51·4
29	52·3	52·3	52·2	52·1	52·1	52·1	52·1	52·1	52·1	52·0	51·9	51·8	51·5
30	52·6	52·4	52·2	52·1	52·1	52·1	52·1	52·1	52·1	52·0	51·9	51·8	51·7
31	53·0	52·7	52·4	52·1	52·1	52·1	52·1	52·1	52·1	52·1	51·9	51·9	51·7
32	53·2	52·8	52·5	52·1	52·1	52·1	52·1	52·1	52·1	52·1	52·0	51·9	51·8
33	53·4	53·0	52·5	52·1	52·1	52·1	52·1	52·1	52·2	52·1	52·0	51·9	51·8
34	53·7	53·3	52·8	52·2	52·2	52·2	52·2	52·2	52·2	52·1	52·0	51·9	51·8
35	54·0	53·4	52·8	52·2	52·2	52·2	52·2	52·2	52·2	52·1	52·0	51·9	51·8
36	54·4	53·7	53·0	52·2	52·2	52·2	52·2	52·2	52·2	52·1	52·0	52·0	51·9
37	54·6	53·9	53·1	52·2	52·2	52·2	52·2	52·2	52·1	52·1	52·0	52·0	51·9
38	54·8	53·9	53·0	52·1	52·1	52·1	52·1	52·1	52·1	52·1	52·0	52·0	51·9
39	55·0	54·1	53·1	52·1	52·1	52·1	52·1	52·1	52·1	52·1	52·0	52·0	51·9
40	55·2	54·1	53·1	52·0	52·0	52·1	52·1	52·1	52·1	52·1	52·0	52·0	51·9
41	55·3	54·2	53·0	51·9	51·9	51·9	52·0	52·0	52·0	52·1	52·0	52·0	51·9
42	55·5	54·2	53·0	51·7	51·8	51·8	51·9	52·0	52·0	52·0	52·0	51·9	51·9
43	...	...	...	51·4	51·5	51·6	51·7	51·8	51·9	51·9	52·0	51·9	51·9
44	...	...	...	51·0	51·1	51·3	51·5	51·6	51·7	51·7	51·8	51·8	51·8
45	...	...	...	50·4	50·6	50·8	51·0	51·3	51·5	51·5	51·6	51·7	51·8
46	...	...	...	49·7	50·0	50·3	50·6	50·9	51·2	51·3	51·5	51·7	51·8
47	...	...	...	48·8	49·2	49·7	50·2	50·6	51·0	51·2	51·3	51·5	51·7
48	...	...	...	48·0	48·6	49·4	50·0	50·4	50·8	51·0	51·2	51·4	51·6
49	...	...	...	46·8	47·5	48·3	49·1	49·8	50·5	50·7	51·0	51·3	51·6
50	...	...	...	45·3	46·3	47·3	48·3	49·3	50·2	50·5	50·8	51·2	51·5
51	...	...	...	43·7	45·0	46·2	47·4	48·6	49·8	50·2	50·6	51·0	51·4
52	...	...	...	42·0	43·5	45·0	46·4	47·8	49·3	49·8	50·3	50·8	51·3
53	...	...	...	...	...	...	...	...	48·7	49·1	49·5	50·0	50·5
54	...	...	...	...	...	...	...	...	...	...	...	...	...
55	...	...	...	...	...	...	...	...	...	...	...	...	...
56	...	...	...	..	...	...	...	...	...	...	...	...	...
57	...	...	...	...	...	...	...	..	...	...	...	...	...
58	...	...	...	...	...	...	...	...	...	...	...	...	...
59	...	...	...	...	...	...	...	...	...	...	...	...	...
60	...	...	...	...	...	...	...	...	...	...	...	...	.
61	...	...	...	...	...	...	...	...	...	..	...	...	...
62	...	...	...	...	...	...	...	...	...	...	...	...	...
63	...	...	...	...	...	...	...	...	...	...	...	...	...
64	...	...	...	...	...	...	...	...	...	...	...	...	...
65	...	...	...	...	...	...	...	...	...	...	...	...	...

F.

of 100 Births to Parents of every Age as under.

AGE.													FATHER'S AGE.
33	34	35	36	37	38	39	40	41	42	43	44	45	
...	...	...	...	...	...	...	...	...	...	...	...	...	20
...	...	...	...	...	...	...	...	...	...	...	...	...	21
...	...	...	...	...	...	...	...	...	...	...	...	...	22
50·5	...	...	...	...	...	...	...	...	...	...	...	...	23
50·7	...	...	...	...	...	...	...	...	...	...	...	...	24
50·9	...	...	...	...	...	...	...	...	...	...	...	...	25
51·0	...	...	...	...	...	...	...	...	...	...	...	...	26
51·1	50·9	50·4	50·2	49·8	49·0	...	...	...	...	...	...	...	27
51·1	50·9	50·6	50·2	49·8	49·3	...	...	...	...	...	...	...	28
51·2	51·0	50·6	50·4	50·0	49·6	...	...	...	...	...	...	..	29
51·4	51·2	50·9	50·5	50·2	49·8	...	...	...	...	...	...	...	30
51·6	51·3	51·0	50·7	50·4	50·0	...	...	...	...	...	...	...	31
51·7	51·3	51·0	50·7	50·4	50·2	50·4	50·9	51·5	52·0	..	...	...	32
51·7	51·4	51·2	50·9	50·7	50·5	50·6	51·0	51·5	52·0	47·6	43·2	38·7	33
51·7	51·5	51·3	51·1	50·9	50·7	51·0	51·3	51·6	52·0	47·8	44·4	39·5	34
51·7	51·6	51·4	51·3	51·1	50·9	51·1	51·4	51·7	52·0	48·2	44·4	40·5	35
51·8	51·7	51·5	51·4	51·2	51·0	51·2	51·4	51·7	52·0	48·6	45·2	41·7	36
51·8	51·7	51·5	51·4	51·3	51·2	51·4	51·6	51·8	52·0	48·9	45·8	42·6	37
51·8	51·7	51·6	51·5	51·4	51·3	51·4	51·6	51·8	51·9	49·1	46·3	43·5	38
51·8	51·7	51·7	51·6	51·5	51·5	51·5	51·6	51·7	51·8	49·3	46·8	44·3	39
51·8	51·8	51·8	51·7	51·7	51·7	51·7	51·7	51·8	51·8	49·6	47·4	45·0	40
51·8	51·8	51·8	51·8	51·9	51·9	51·8	51·8	51·7	51·7	49·8	47·9	45·9	41
51·9	51·9	51·9	51·9	52·0	52·0	51·9	51·8	51·7	51·6	49·9	48·2	46·4	42
51·9	51·9	52·0	52·0	52·1	52·2	52·0	51·9	51·7	51·5	50·0	48·5	47·0	43
51·9	51·9	52·0	52·1	52·2	52·3	52·1	51·9	51·6	51·4	50·2	49·0	47·6	44
51·9	52·0	52·1	52·2	52·3	52·5	52·2	51·9	51·6	51·3	50·2	49·1	48·0	45
51·9	52·0	52·1	52·3	52·4	52·6	52·3	52·0	51·7	51·3	50·4	49·5	48·5	46
51·9	52·0	52·1	52·3	52·5	52·7	52·4	52·1	51·8	51·2	50·5	49·8	49·0	47
51·8	52·0	52·2	52·4	52·6	52·8	52·4	52·0	51·4	51·1	50·6	50·1	49·5	48
51·8	52·0	52·2	52·4	52·7	52·9	52·6	52·1	51·5	51·0	50·7	50·4	50·0	49
51·8	52·0	52·2	52·5	52·7	53·0	52·6	52·1	51·5	50·8	50·6	50·4	50·2	50
51·7	51·8	52·1	52·4	52·7	53·1	52·5	51·9	51·3	50·6	50·6	50·5	50·5	51
51·7	52·0	52·3	52·6	52·9	53·2	52·5	51·8	51·1	50·4	50·5	50·6	50·8	52
51·0	51·5	52·0	52·5	52·9	53·3	52·6	51·9	51·1	50·3	50·5	50·7	50·9	53
...	...	...	...	...	53·4	52·6	51·8	51·0	50·0	50·3	50·6	50·9	54
...	...	...	...	...	53·5	52·6	51·7	50·8	49·8	50·1	50·4	50·8	55
...	...	...	...	...	53·6	53·2	52·8	52·4	52·0	51·6	51·1	50·6	56
...	...	...	...	...	53·7	53·2	52·7	52·2	51·7	51·2	50·7	50·2	57
...	...	...	...	...	53·8	53·2	52·6	52·0	51·4	50·8	50·2	49·6	58
...	...	...	...	...	53·9	53·2	52·5	51·8	51·1	50·4	49·7	49·0	59
...	...	...	...	...	54·0	53·2	52·4	51·6	50·8	50·0	49·0	48·0	60
...	...	...	...	...	54·0	53·0	52·0	51·0	50·0	49·0	48·0	47·0	61
...	...	...	...	...	54·1	52·0	51·9	50·8	49·7	48·5	47·3	46·0	62
...	...	...	...	...	54·1	52·7	51·3	49·9	48·7	47·5	45·8	44·0	63
...	...	...	...	...	54·1	52·4	50·7	49·0	47·3	45·6	43·8	42·0	64
...	..	...	...	...	54·1	52·0	49·9	47·8	45·7	43·6	41·5	39·5	65

Appendix G.

Average Number of Children to Women marrying at any age. Husband's age assumed to be five years older than Wife's.

Age of Wife, (x)	Number of Couples Surviving at each Age.	Exposed to risk of Childbirth during whole year.	Probability of a Birth during the year.	Children Annually.	Number of Children Born at and after each Age.	Average Number of Children to Women Marrying at Age x, whose first children were not ante-nuptially conceived.	Probability of a Child of ante-nuptial conception.	Total Average Number of Children to Women Marrying at Age x.
20	100,000	99,632	·285	28,395	520,172	5·202	·065	5·267
21	99,265	98,780	·295	28,940	491,777	4·882	·048	4·930
22	98,296	97,787	·300	29,336	462,837	4·549	·035	4·584
23	97,278	96,750	·301	29,122	433,501	4·217	·027	4·244
24	96,222	95,670	·297	28,414	404,379	3·891	·022	3·913
25	95,118	94,548	·292	27,608	375,965	3·576	·020	3·596
26	93,978	93,385	·287	26,801	348,357	3·274	·014	3·288
27	92,792	92,188	·282	25,997	321,556	2·984	·008	2·992
28	91,585	90,963	·275	24,833	295,559	2·707	·007	2·714
29	90,341	89,704	·270	24,220	270,726	2·446	·004	2·450
30	89,068	88,415	·264	23,342	246,506	2·196	·003	2·199
31	87,762	87,086	·258	22,468	223,164	1·959	·003	1·962
32	86,410	85,709	·254	21,770	200,696	1·734	·002	1·736
33	85,008	84,286	·247	20,819	178,926	1·521	·003	1·524
34	83,564	82,822	·242	20,443	158,107	1·321	·002	1·323
35	82,081	81,320	·237	19,273	137,664	1·130	·002	1·132
36	80,560	79,782	·233	18,596	118,391	·954	·002	·956
37	79,005	78,211	·226	17,676	99,795	·788	·002	·790
38	77,417	76,601	·210	16,086	82,119	·636	·003	·639
39	75,785	74,957	·190	14,242	66,033	·500	·002	·502
40	74,129	73,288	·170	12,459	51,791	·384	·003	·387
41	72,446	71,602	·144	10,311	39,332	·285	·002	·287
42	70,758	69,970	·120	8,396	29,021	·205	·001	·206
43	69,182	68,326	·095	6,491	20,625	·143	...	·143
44	67,469	66,616	·075	4,996	14,134	·095	...	·095
45	65,764	64,898	·056	3,634	9,138	·060	...	·060
46	64,031	63,132	·040	2,525	5,504	·035	...	·035
47	62,233	61,298	·023	1,410	2,979	·019	..	·019
48	60,362	59,410	·014	832	1,569	·009	...	·009
49	58,458	57,468	·008	460	737	·004	...	·004
50	56,477	55,470	·005	277	277	·002	...	·002
51	54,464	.....	...	.....	.....	.....	...	.....

Appendix H.

Probability of Death during Confinement.

Unadjusted Figures—Actual Experience.

(*a*) At each Confinement—Married Women.

Number of Confinement.	Probability of Death.	Number of Confinement.	Probability of Death.
1	·008820	11	·009064
2	·004400	12	·014120
3	·005114	13	·014005
4	·005268	14	·005504
5	·006595	15	·010949
6	·006195	16	·008000
7	·007345	17	·000000
8	·008714	18	·050000
9	·010519	19	.....
10	·009016	20	.....

(*b*) At First Confinement (Primiparæ)—Married Women.

Age of Mother.	Probability of Death.	Age of Mother.	Probability of Death.
15	.....	30	·014505
16	.....	31	·006510
17	·010067	32	·017884
18	·007958	33	·024952
19	·008565	34	·017413
20	·005197	35	·017751
21	·006624	36	·006667
22	·007209	37	·015306
23	·008219	38	·017442
24	·007950	39	·006849
25	·008527	40	·009709
26	·007197	41	·023810
27	·007208	42	·000000
28	·012229	43	·074074
29	·014867	44	·062500

APPENDIX H—*continued.*

(*c*) At other than First Confinement (Multiparæ)—Married Women.

Age of Mother.	Probability of Death.	Age of Mother.	Probability of Death.
15	.....	24	·003587
16	.....	25	·002717
17	.....	26	·003772
18	·002857	27	·004701
19	·003795	28	·006236
20	·001914	29	·004293
21	·002574	30 and under 35	·006803
22	·003326	35 ,, 40	·008848
23	·002753	40 ,, 45	·011399

(*d*) At any Confinement (Primiparæ and Multiparæ combined)—Married Women.

Age of Mother.	Probability of Death.	Age of Mother.	Probability of Death.
17	·009250	26	·004497
18	·007159	27	·005133
19	·007299	28	·007107
20	·003917	29	·005490
21	·004791	30 and under 35	·007408
22	·005130	35 ,, 40	·008988
23	·004802	40 ,, 45	·011572
24	·004911	45 and over	·013940
25	·004208		

(*e*) At any Confinement—Unmarried Women.

Age of Mother.	Probability of Death.	Age of Mother.	Probability of Death.
13	·142857	23	·012922
14	·018182	24	·011321
15	·032259	25	·009050
16	·014252	26	·006814
17	·014252	27	·012195
18	·009151	28	·004367
19	·009279	29	·013966
20	·011396	30 and under 35	·010903
21	·012725	35 ,, 40	·002491
22	·012605	40 ,, 45	·008264

Appendix J.

Number of Confinements and Deaths in Childbirth of all Married Women (Primiparæ and Multiparæ combined).

Age of Mothers.	Number of Confinements.	Number of Deaths in Childbirth.	Age of Mothers.	Number of Confinements.	Number of Deaths in Childbirth.
15	47	...	26	12,450	56
16	247	...	27	12,078	62
17	973	9	28	12,383	88
18	2,235	16	29	11,294	62
19	3,973	29	30 and under 35	49,542	367
20	5,361	21	35 ,, 40	34,378	309
21	7,723	37	40 ,, 45	12,790	148
22	9,551	49	45 and over	1,363	19
23	11,038	53			
24	11,607	57	Total	210,915	1,432
25	11,882	50			

The total number of confinements was 210,935, but in 20 cases the mother's age was not stated.

Sydney: William Applegate Gullick, Government Printer.—1900.

Probability of a birth within 12 Months

(a) To all married women excluding antenuptial conception
(b) To newly married women dº dº dº
(c) To women who have already borne a child

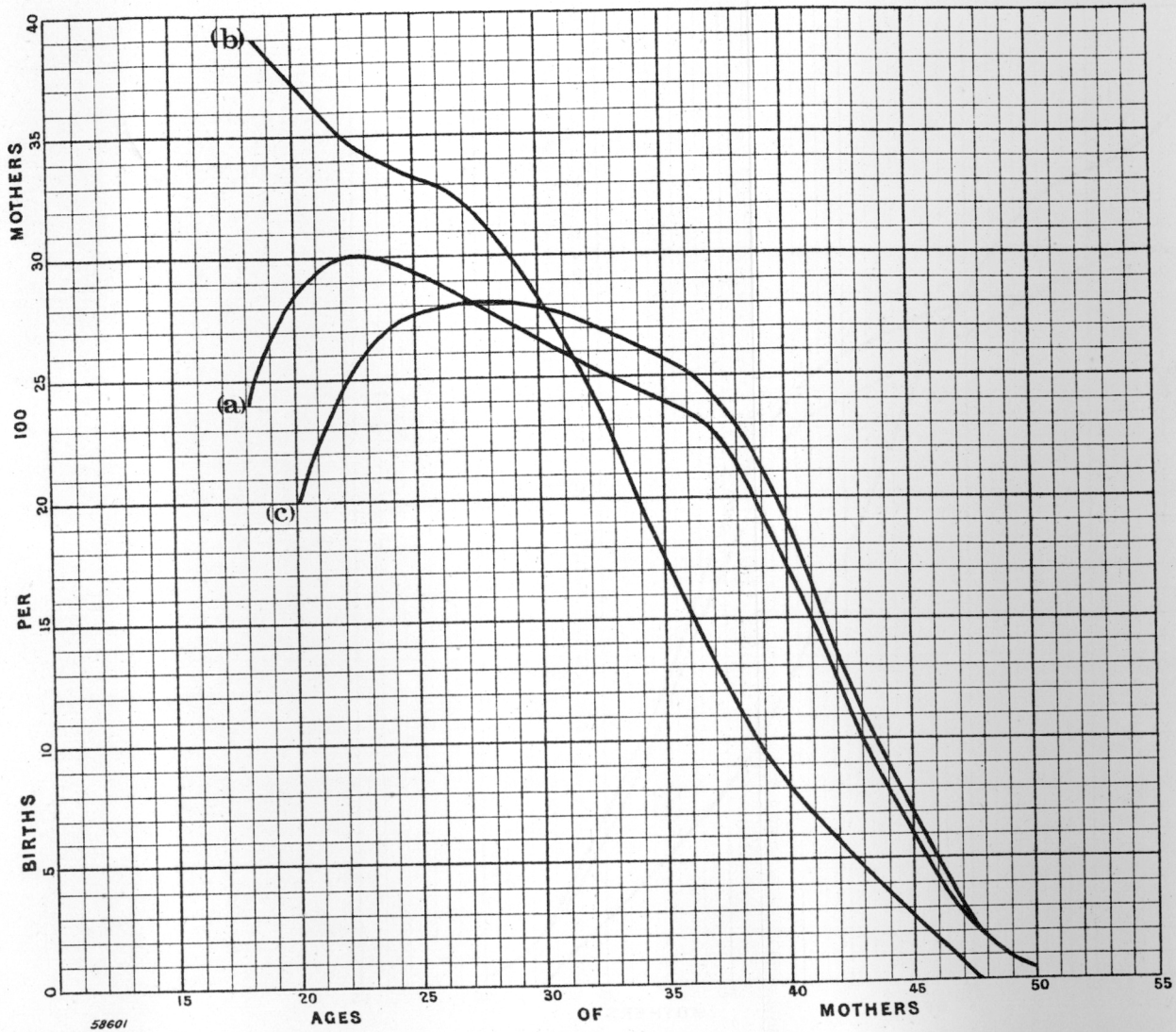

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DIAGRAM A.

Photo-lithographed by
W. A. Gullick, Government Printer,
Sydney, N.S.W.

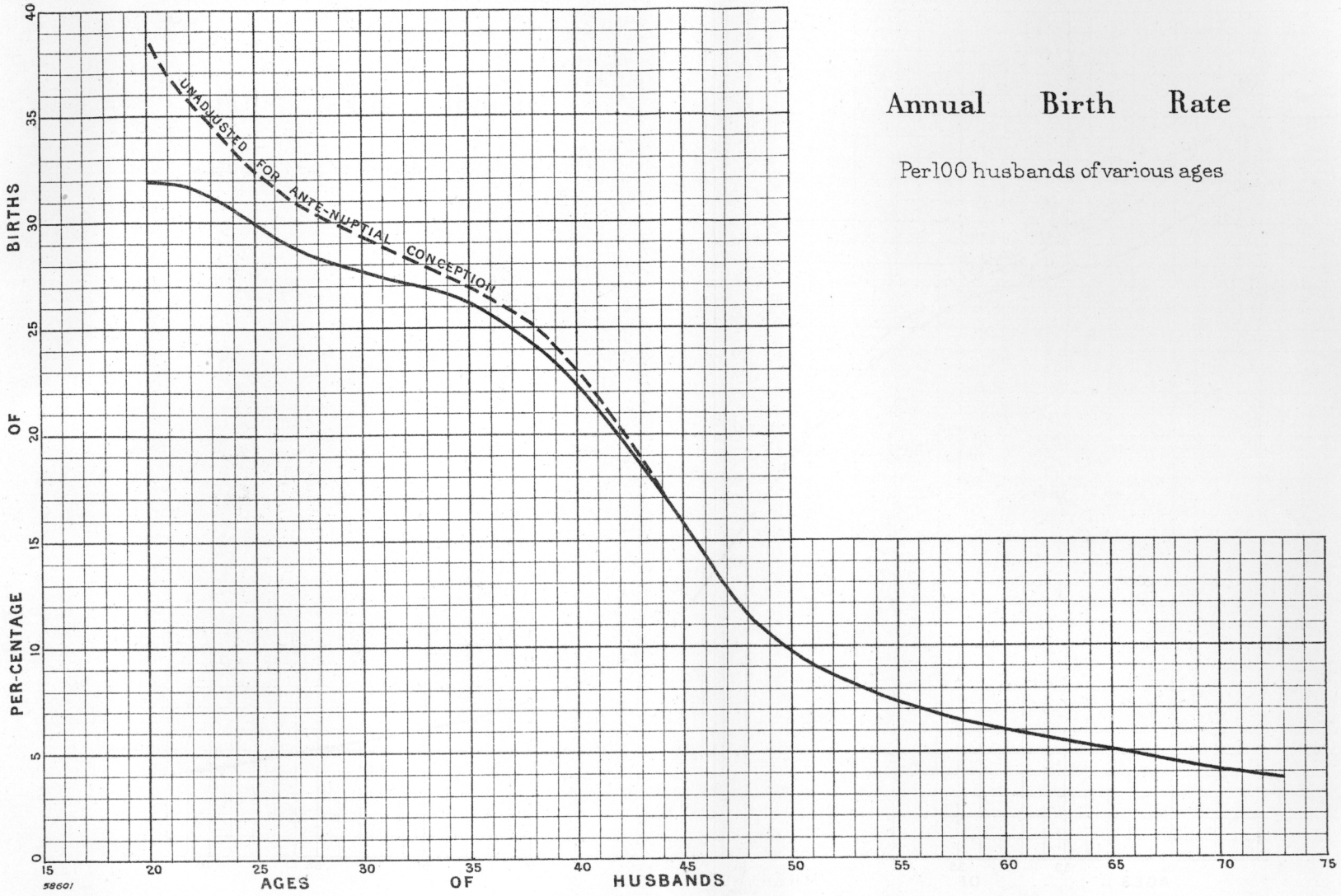


DIAGRAM B

Photo-lithographed by
W. A. Gullick, Government Printer,
Sydney, N.S.W.

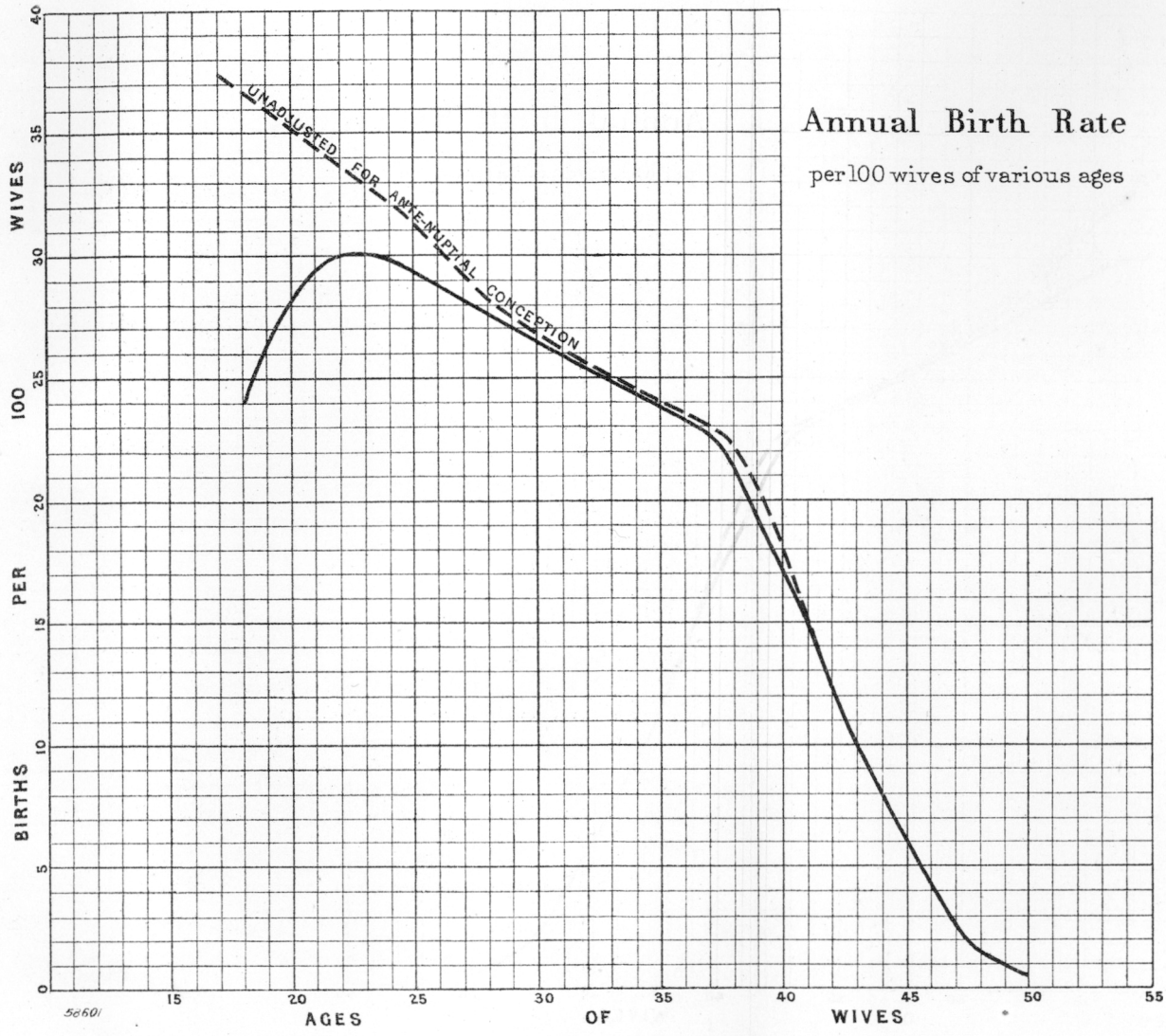
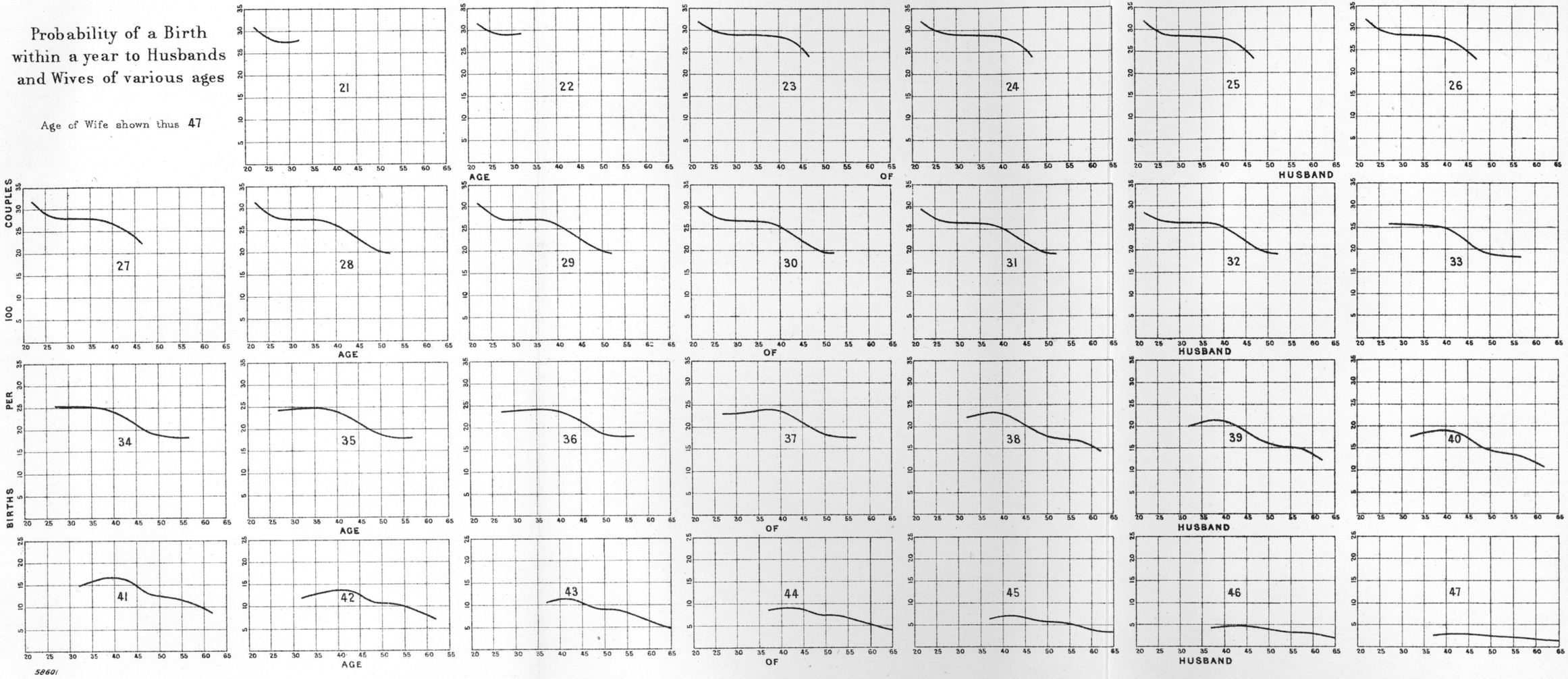


DIAGRAM C

Photo-lithographed by
W. A. Gullick, Government Printer,
Sydney, N.S.W.

Probability of a Birth within a year to Husbands and Wives of various ages

Age of Wife shown thus 47



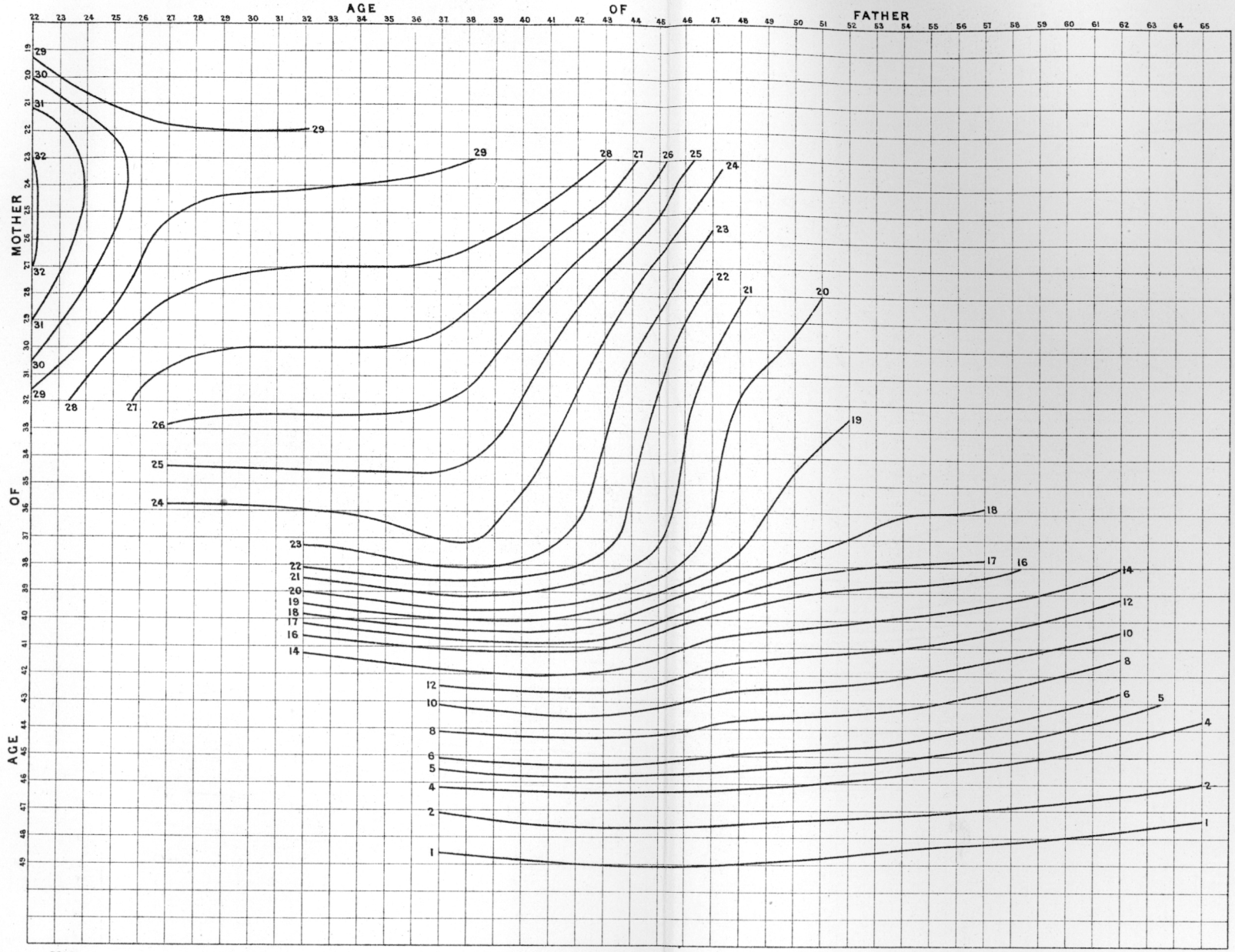
58601

DIAGRAM D

Photo-lithographed by W. A. Gullick, Government Printer, Sydney, N.S.W.

Annual Bigenous Natality per 100 Couples

The figures and curves show the per-centages



58601

DIAGRAM E

Photo-lithographed by
W. A. Gullick, Government Printer,
Sydney, N.S.W.

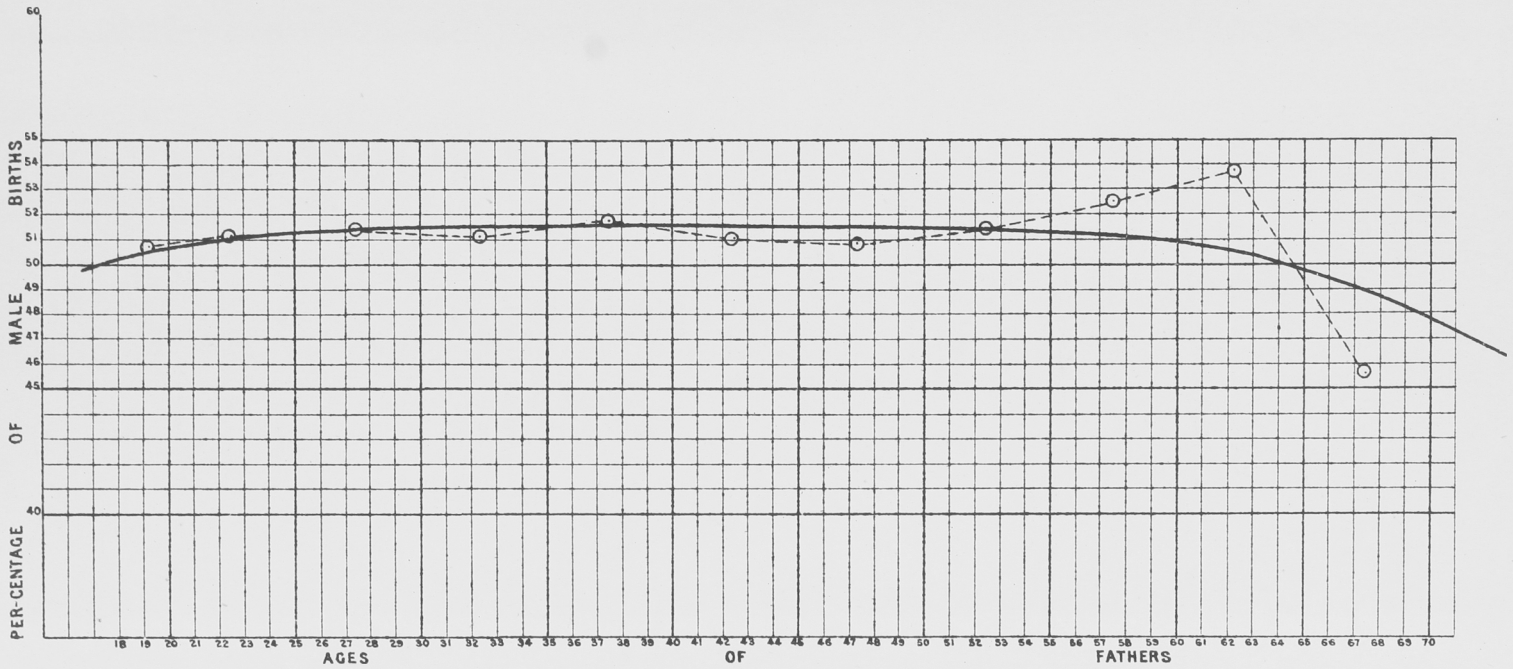


DIAGRAM F

58601

Photo-lithographed by
W. A. Gullick, Government Printer,
Sydney, N.S.W.

ACTUAL PER-CENTAGE OF MALE BIRTHS AT EACH AGE ○------○

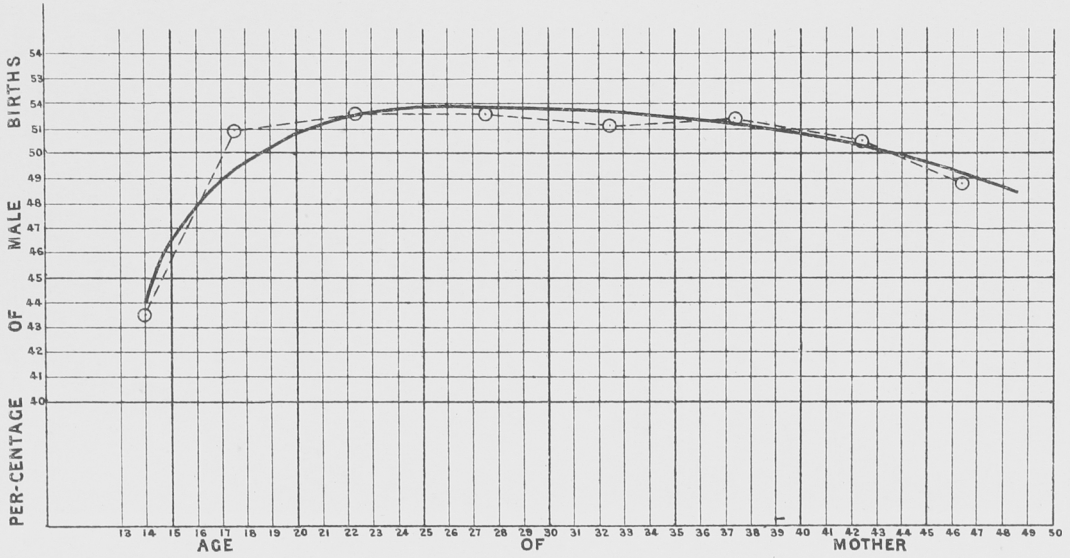


DIAGRAM C

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Sydney, N.S.W.

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Risk of Death in Child-birth

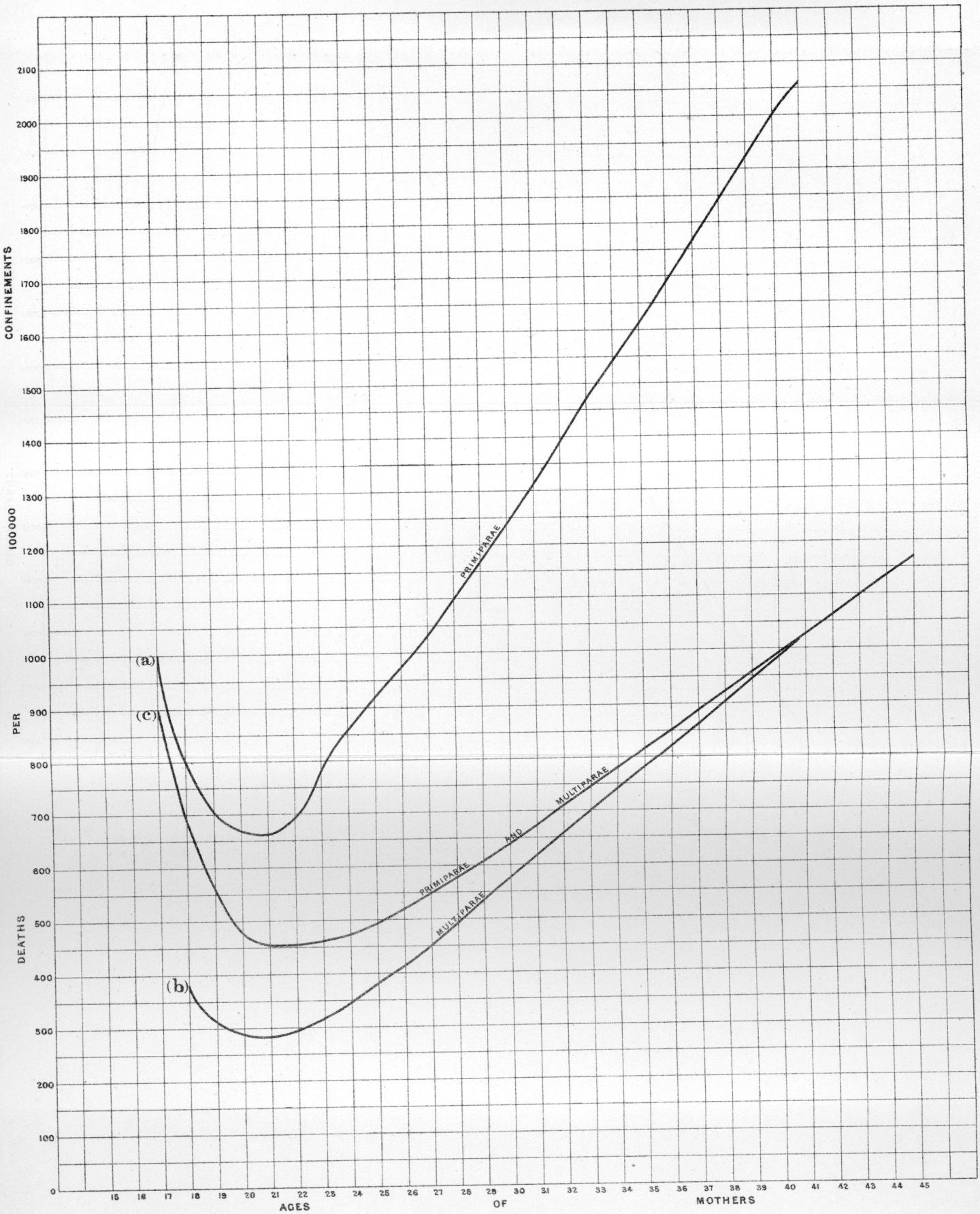

DIAGRAM H

58601

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